Vol. 905 Number 4

OFFICIAL GAZETTE

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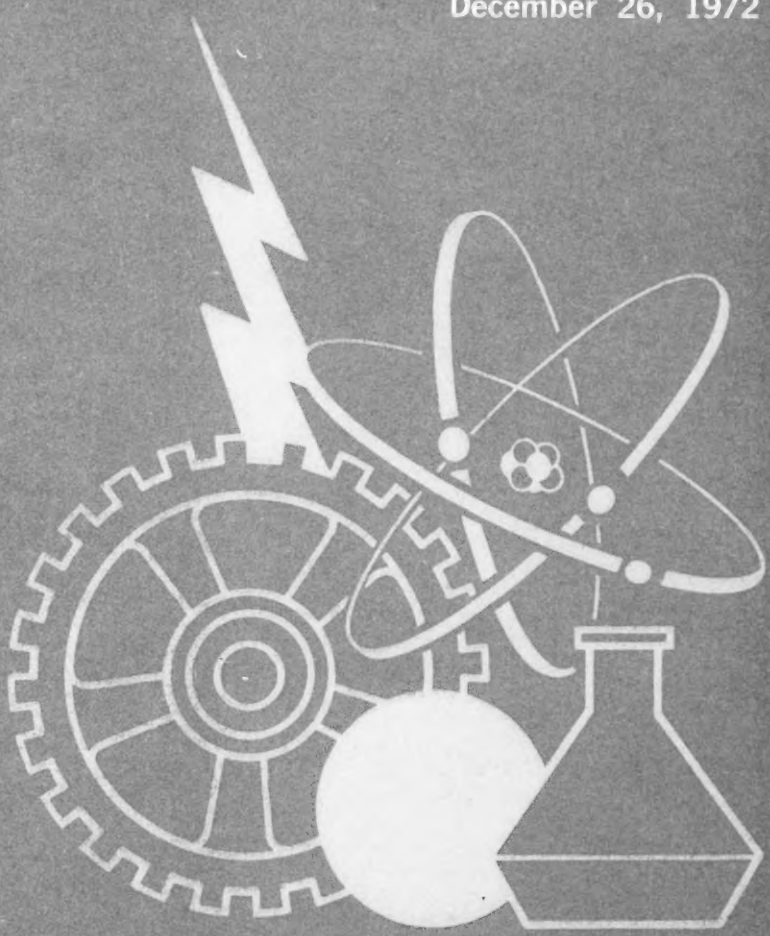
PATENTS

December 26, 1972



U. S. DEPARTMENT OF COMMERCE
Patent Office

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OFFICIAL GAZETTE of the UNITED STATES PATENT OFFICE

December 26, 1972 Volume 905 Number 4

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PATENT OFFICE NOTICES

ICIREPAT Numbers for Identification of Bibliographic Data on the First Page of Patent and Like Documents

The Paris Union Committee for International Cooperation in Information Retrieval Among Patent Offices (ICIREPAT) has recently approved revisions in INID Codes (ICIREPAT Numbers for Identification of Data) which become effective for use by the countries which apply such codes to their documents on January 1, 1973. A complete list of the Codes, as revised, appears below.

Changes in INID Codes which particularly affect their application to U.S. patents consist of the provision of the new codes [75] and [76] that are intended primarily for use by countries in which the national laws require that the inventor and applicant are normally the same. Use of the code [72] which was heretofore applied to U.S. patents will be discontinued and, in lieu thereof, codes [75] and [76], as appropriate, will be used effective with the patent issue of January 2, 1973.

The purpose of INID Codes is to provide a means whereby the various data appearing on the first page of patent and like documents can be identified without knowledge of the language used and the laws applied. They are now used by a number of Patent Offices and have been applied to U.S. patents since Aug. 4, 1970. Some of the codes are not pertinent to the documents of a particular country and some which are may, in fact, not be used. Those codes which are not applicable to U.S. patents or not used are identified in the list below.

[10] *Document identification*
- [11] Number of the document
- [19] ICIREPAT country code, or other identification, of the country publishing the document

[20] *Domestic filing data*
- [21] Number(s) assigned to the application(s), e.g. "Numero d'enregistrement national," "Aktenzeichen"
- [22] Date(s) of filing application(s)
- [23] Other date(s) of filing, including exhibition filing date and date of filing complete specification following provisional specification [1]

[30] *Convention priority data* [2]
- [31] Number(s) assigned to priority application(s)[1]
- [32] Date(s) of filing of priority application(s)[1]
- [33] Country (countries) in which priority application(s) was (were) filed [1]

[40] *Date(s) of making available to the public*
- [41] Date of making available to the public by viewing, or copying on request, an unexamined document, on which no grant has taken place on or before the said date [1]
- [42] Date of making available to the public by viewing, or copying on request, an examined document, on which no grant has taken place on or before the said date [1]
- [43] Date of publication by printing or similar process of an unexamined document, on which no grant has taken place on or before the said date [1]
- [44] Date of publication by printing or similar process of an examined document, on which no grant has taken place on or before the said date [1]
- [45] Date of publication by printing or similar process of a document, on which grant has taken place on or before the said date
- [46] Date of publication by printing or similar process of the claim(s) only of a document [1]
- [47] Date of making available to the public by viewing, or copying on request, a document on which grant has taken place on or before the said date [1]

[50] *Technical information*
- [51] International Patent Classification
- [52] Domestic or national classification
- [53] Universal Decimal Classification [1]
- [54] Title of the invention
- [55] Keywords [1]
- [56] List of prior art documents, if separate from descriptive text
- [57] Abstract or claim
- [58] Field of search

[60] *Reference(s) to other legally related domestic document(s)* [3]
- [61] Related by addition(s)[1]
- [62] Related by division(s)
- [63] Related by continuation(s)
- [64] Related by reissue(s)

[70] *Identification of parties concerned with the document*
- [71] Name(s) of applicant(s)[1]
- [72] Name(s) of inventor(s) if known to be such [1]
- [73] Name(s) of grantee(s)
- [74] Name(s) of attorney(s) or agent(s)[1]
- [75] Name(s) of inventor(s) who is(are) also applicant(s)
- [76] Name(s) of inventor(s) who is(are) also applicant(s) and grantee(s)

Codes [75] and [76] are intended primarily for use by countries in which the national laws require that the inventor and applicant are normally the same. In other cases [71] and [72] or [71], [72] and [73] should generally be used.

Notes concerning the application of INID Codes to U.S. patents:

[1] This item is either not applicable to U.S. patents or, if applicable, is either not coded or not assigned this code.

[2] The respective specific data elements within this category are not individually coded. They are printed in a particular format under the caption "Foreign Application Priority Data" which is identified by the INID Code [30].

[3] The specific data applicable to a particular patent is printed under the caption "Related U.S. Application Data." Where the relationship is due solely to division or to continuation and/or continuation-in-part, the data is identified by the appropriate specific INID Code, i.e., [62] or [63], respectively. Where the relationship is due to any combination of these two specific sub-categories, the data is identified by use of the generic INID Code [60].

Approved:

WILLIAM I. MERKIN,
Assistant Commissioner for Administration.

Nov. 21, 1972.

Proposed Implementation of Inventor's Certificate Legislation

[37 CFR Part 1]

Serial Number and Filing Date

Notice is hereby given that, pursuant to the authority contained in section 6 of the Act of July 19, 1952 (66 Stat. 793; 35 U.S.C. 6), as amended October 5, 1971, P.L. 92–132, 85 Stat. 364, the Patent Office proposes to add a new paragraph (c) to § 1.55 (37 CFR 1.55(c)) to read as set forth below.

All persons are invited to present their views, objections, recommendations, or suggestions in connection with the proposed changes to the Commissioner of Patents, Washington, D.C. 20231 on or before February 12, 1973. No oral hearings will be held. Any written comments or suggestions may be inspected by any person, upon written request, a reasonable time after the closing date for submitting comments.

The proposed rule change is intended to implement P.L. 92–358, dated July 28, 1972, reprinted below, which accords rights of priority to applications where the claims for priority are based on earlier filed applications for inventor's certificates under certain conditions. This legislation now enables the United States to complete its ratification of the Stockholm Revision of the Paris Convention.

By the terms of the new legislation, inventor's certificates filed in a foreign country in which applicants have a right

to apply, at their discretion, either for a patent or for an inventor's certificate may form the basis for rights of priority.

The new paragraph proposed below would insure that the right of priority would be granted for inventor's certificates involving subject matter for which an applicant in the country of earlier filing has an option to file for either a patent or inventor's certificate, as required by the new legislation. It should be noted that in certain countries which grant both patents and inventor's certificates to reward inventors, applicants may only be able to apply for inventor's certificates as to certain subject matter, generally pharmaceuticals, foodstuffs, and cosmetics.

The text of the proposed new paragraph is as follows:

§ 1.55 *Serial number and filing date of application.*

* * * * *

(c) An applicant may under certain circumstances claim priority on the basis of an application for an inventor's certificate in a country granting both inventor's certificates and patents. When an applicant wishes to claim the right of priority as to a claim or claims of the application on the basis of an application for an inventor's certificate in such a country under 35 U.S.C. 119, last paragraph (as amended July 28, 1972), the applicant or his attorney or agent, when submitting a claim for such right as specified in paragraph (b) of this section, shall include an affidavit or declaration including a specific statement that, upon an investigation, he has satisfied himself that to the best of his knowledge the applicant, when filing his application for the inventor's certificate, had the option to file an application either for a patent or an inventor's certificate as to the subject matter of the identified claim or claims forming the basis for the claim of priority.

ROBERT GOTTSCHALK,
Commissioner of Patents.

Approved: Nov. 21, 1972.

RICHARD O. SIMPSON,
Acting Assistant Secretary for Science and Technology.

PUBLIC LAW 92-358, JULY 28, 1972

To carry into effect a provision of the Convention of Paris for the Protection of Industrial Property, as revised at Stockholm, Sweden, July 14, 1967.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That section 119 of title 35 of the United States Code, entitled "Patents," is amended by adding at the end thereof the following paragraph:

"Applications for inventors' certificates filed in a foreign country in which applicants have a right to apply, at their discretion, either for a patent or for an inventor's certificate shall be treated in this country in the same manner and have the same effect for purpose of the right of priority under this section as applications for patents, subject to the same conditions and requirements of this section as apply to applications for patents, provided such applicants are entitled to the benefits of the Stockholm Revision of the Paris Convention at the time of such filing."

SEC. 2. Subsection 102(d) of title 35 of the United States Code is amended to read as follows:

"(d) the invention was first patented or caused to be patented, or was the subject of an inventor's certificate, by the applicant or his legal representatives or assigns in a foreign country prior to the date of the application for patent in this country on an application for patent or inventor's certificate filed more than twelve months before the filing of the application in the Untied States, or."

SEC. 3. (a) Section 1 of this Act shall take effect on the date when Articles 1–12 of the Paris Convention of March 20, 1883, for the Protection of Industrial Property, as revised at Stockholm, July 14, 1967, come into force with respect to the United States and shall apply only to applications thereafter filed in the United States.

(b) Section 2 of this Act shall take effect six months from the date when Articles 1–12 of the Paris Convention of March 20, 1883, for the Protection of Industrial Property, as revised at Stockholm, July 14, 1967, come into force with respect to the United States and shall apply to applications thereafter filed in the United States.

Published in 37 FR 25172, Nov. 28, 1972

Certificates of Correction for the Week of Dec. 26, 1972

Re. 27,389	3,640,999	3,661,850	3,674,840
D. 223,885	3,642,058	3,661,873	3,675,142
D. 224,276	3,642,649	3,661,956	3,675,210
3,484,489	3,642,822	3,662,051	3,675,319
3,528,338	3,643,007	3,662,220	3,675,385
3,552,246	3,643,125	3,662,472	3,675,432
3,553,121	3,645,006	3,662,488	3,675,440
3,564,146	3,645,094	3,663,376	3,675,596
3,565,956	3,645,135	3,664,137	3,675,933
3,566,351	3,646,108	3,664,405	3,676,538
3,569,609	3,646,197	3,665,406	3,677,096
3,578,274	3,646,390	3,665,765	3,677,545
3,580,843	3,647,492	3,666,414	3,677,736
3,592,514	3,647,763	3,666,569	3,677,746
3,594,858	3,647,767	3,666,796	3,677,848
3,595,193	3,647,781	3,666,833	3,678,021
3,595,852	3,647,880	3,666,921	3,678,065
3,600,976	3,647,842	3,666,989	3,678,162
3,607,097	3,647,940	3,667,468	3,678,193
3,607,862	3,648,135	3,667,956	3,678,935
3,608,790	3,648,688	3,668,118	3,679,223
3,609,174	3,650,330	3,668,157	3,679,395
3,614,011	3,651,204	3,668,179	3,679,534
3,614,682	3,652,255	3,668,498	3,679,540
3,616,337	3,652,420	3,668,523	3,679,609
3,616,821	3,652,562	3,668,711	3,679,689
3,617,299	3,653,374	3,669,303	3,680,160
3,617,318	3,655,176	3,669,716	3,680,399
3,619,468	3,656,113	3,669,781	3,680,407
3,620,536	3,656,278	3,669,885	3,680,408
3,620,666	3,656,534	3,670,213	3,680,644
3,620,737	3,656,942	3,670,409	3,680,985
3,621,909	3,656,971	3,670,510	3,681,106
3,622,587	3,657,251	3,671,508	3,681,199
3,625,947	3,657,316	3,671,711	3,681,381
3,627,238	3,657,394	3,671,717	3,681,400
3,629,545	3,657,525	3,671,726	3,681,483
3,629,853	3,657,678	3,671,949	3,683,328
3,631,348	3,657,791	3,672,181	3,683,733
3,632,208	3,658,030	3,672,640	3,684,087
3,632,607	3,658,347	3,672,830	3,684,102
3,634,101	3,658,447	3,673,125	3,684,149
3,636,102	3,658,495	3,673,259	3,684,627
3,636,470	3,659,018	3,673,260	3,685,684
3,636,888	3,659,657	3,673,267	3,686,010
3,636,990	3,660,016	3,674,056	3,686,180
3,637,390	3,660,073	3,674,335	3,686,271
3,638,592	3,660,117	3,674,432	3,686,855
3,639,599	3,660,159	3,674,709	
3,639,667	3,660,782	3,674,760	
3,640,727	3,660,982	3,674,788	

Disclaimers and Dedications

3,608,631.—*Phillip S. Sizer,* Dallas, and *Harry E. Schwegman,* Richardson, Tex. APPARATUS FOR PUMPING TOOLS INTO AND OUT OF A WELL. Patent dated Sept. 28, 1971. Disclaimer and dedication filed Feb. 18, 1972, by the assignee, *Otis Engineering Corporation.*

Hereby enters this disclaimer to claims 1, 2, 8, 12, 17, 19, 20, 21, 22, 23, 24, 25, 26, 27, and 28 and dedicates same to the Public for the remainder of the term of said patent.

3,678,220.—*Otto R. Luhrs,* Boulder, Colo. ANGULATED POSITIONING MARKS FOR MOVING WEB. Patent dated July 18, 1972. Disclaimer and dedication filed Aug. 28, 1972, by the assignee, *International Business Machines Corporation.*

Hereby disclaims and dedicates to the Public the entire term of said patent.

Disclaimers

Des. No. 222,735.—*Karl Wiedemann,* Cherry Hill, N.J. BOWL. Patent dated Dec. 14, 1971. Disclaimer filed Apr. 19, 1972, by the assignee, *Melitta, Inc.*

Hereby disclaims the portion of the term of the patent subsequent to July 27, 1985.

2,783,384.—*Richard L. Bright,* Adamsburg, and *George H. Royer,* Pittsburgh, Pa. ELECTRICAL INVERTER CIRCUITS. Patent dated Feb. 26, 1957. Disclaimer filed Nov. 10, 1971, by the assignee, *Westinghouse Electric Corporation.*

Hereby enters this disclaimer to claims 2, 3, 5, 6, 7, 8, 11, 12, 13, 15, 16, 17 and 19 of said patent.

3,149,797.—*Sheldon Lee Pastor,* Chicago, *Carl W. Claras,* Western Springs, *Robert L. Moore,* La Grange Highlands, *Rudolph A. Rom,* Berwyn, and *Myron Zarr,* Chicago, Ill. SELF-THREADING MAGNETIC TAPE RECORDING AND REPRODUCING APPARATUS. Patent dated Sept. 22, 1964. Disclaimer filed Sept. 29, 1972, by the assignee, *Minnesota Mining and Manufacturing Company,* consenting.

Hereby enters this disclaimer to claims 1, 2 and 4 of said patent.

3,278,534.—*Max Schellenbaum,* Riehen, *Christian Luethi,* Muenchenstein, and *Max Duennenberger,* Frenkendorf, Basel-Land, Switzerland. NEW HYDROXYPHENYL-1,3, 5-TRIAZINES. Patent dated Oct. 11, 1966. Disclaimer filed Apr. 11, 1972, by the inventors, and the assignee, *Ciba-Geigy AG,* assenting.

Hereby enter this disclaimer to claims 1 and 2 of said patent.

3,293,247.—*Max Duennenberger,* Frenkendorf, *Hans Rudolf Biland,* Basel, *Christian Luethi,* Muenchenstein, and *Max Schellenbaum,* Riehen, Switzerland. HYDROXYPHENYL-1,3,5-TRIAZINES. Patent dated Dec. 20, 1966. Disclaimer filed Apr. 11, 1972, by the inventors, and the assignee, *Ciba-Geigy AG,* assenting.

Hereby enter this disclaimer to claims 1, 2, 3, 5, 7, 8 and 9 of said patent.

3,293,249.—*Hans Rudolf Biland,* Basel, *Christian Luethi,* Muenchenstein, and *Max Duennenberger,* Frenkendorf, Switzerland. HYDROXYPHENYL - TRIAZINES AND PROCESS FOR THEIR MANUFACTURE. Patent dated Dec. 20, 1966. Disclaimer filed Apr. 11, 1972, by the inventors, and the assignee, *Ciba Limited,* assenting.

Hereby enter this disclaimer to claims 1 and 2 of said patent.

3,476,611.—*Anthony Sabatino,* Minneapolis, Minn. INTERCELL CONNECTION AND METHOD OF MAKING SAME. Patent dated Nov. 4, 1969. Disclaimer filed Apr. 5, 1972, by the assignee, *Globe-Union Inc.*

Hereby enters this disclaimer to claims 13 and 15 of said patent.

3,565,910.—*Donald L. Elbert,* Gulf Breeze, and *Robert T. Wright,* Pensacola Beach, Fla. PIGMENTED FIBER-FORMING NYLON COMPOSITION. Patent dated Feb. 23, 1971. Disclaimer filed Jan. 5, 1971, by the assignee, *Monsanto Company.*

Hereby enters this disclaimer to the portion of the term of the patent subsequent to July 24, 1984.

3,574,627.—*Max H. Stern* and *Gregory J. Lestina,* Rochester, N.Y. COLOR PHOTOGRAPHIC ELEMENTS. Patent dated Apr. 13, 1971. Disclaimer filed Nov. 9, 1972, by the assignee, *Eastman Kodak Company.*

Hereby enters this disclaimer to claims 1, 3, 4, 6, 7, 8, 16, 17, 18 and 19, for the remaining term of said patent.

3,638,957.—*Joseph A. Marsi,* Baldwin Park, Calif. MECHANICAL SEAL WITH LUBRICATING MEANS. Patent dated Feb. 1, 1972. Disclaimer filed Oct. 10, 1972, by the assignee, *Borg-Warner Corporation.*

Hereby enters this disclaimer to claims 1 to 9 of said patent.

3,662,117.—*Jayantkumar Bhatt*, Ottawa, Ontario, *John George Mlacak*, Kanata, Ontario, and *Thomas Arthur Winlow*, Ottawa, Ontario, Canada. CROSSTALK MINIMIZATION IN MULTI-WIRE NETWORKS. Patent dated May 9, 1972. Disclaimer filed Oct. 10, 1972, by the assignee, *Northern Electric Company Limited.*

Hereby enter this disclaimer to claims 1 to 3, inclusive, of said patent.

3,662,482.—*Robert Sarkisian*, Oak Park, Mich. POSTER DISPLAY DEVICE. Patent dated May 16, 1972. Disclaimer filed June 1, 1972, by the inventor.

Hereby disclaims the portion of the term of the patent subsequent to Mar. 7, 1989.

Dedications

2,865,730.—*Robert L. Gates*, Medina, and *Kenneth P. Dorschner*, Middleport, N.Y. METHOD OF REGULATING PLANT GROWTH. Patent dated Dec. 23, 1958. Dedication filed Nov. 4, 1971, by the assignee, *Food Machinery and Chemical Corporation.*

Hereby dedicates to the Public the remaining term of this patent.

3,286,606.—*Jack D. Layton*, Salem, Oreg. HEATED SCREED ASSEMBLY. Patent dated Nov. 22, 1966. Dedication filed Feb. 2, 1972, by the assignee, *Layton Manufacturing Co.*

Hereby dedicates to the Public the entire remaining term of said patent.

3,473,509.—*Mitsutake Miyamura*, Tokyo, Japan. METHOD FOR THE ARTIFICIAL CULTURE OF SHRIMP. Patent dated Oct. 21, 1969. Dedication filed Nov. 10, 1972, by the assignee, *Marifarms, Incorporated.*

Hereby dedicates to the Public the full term of said patent.

3,477,406.—*Motosaku Fujinaga*, Tokyo, Japan. METHOD OF CULTIVATION OF PENAEID SHRIMP. Patent dated Nov. 11, 1969. Dedication filed Nov. 10, 1972, by the assignee, *Marifarms, Incorporated.*

Hereby dedicates to the Public the full term of said patent.

3,566,887.—*Thomas F. Nelson*, Stratford, Conn. HAIR CURLER. Patent dated Mar. 2, 1971. Dedication filed Oct. 16, 1972, by the assignee, *General Electric Company.*

Hereby dedicates to the Public the remaining term of said patent.

PATENT EXAMINING CORPS

R. A. WAHL, Assistant Commissioner
WILLIAM FELDMAN, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF DECEMBER 12, 1972

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—M. STERMAN, Director. Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	10-18-71
GENERAL ORGANIC CHEMISTRY, GROUP 120—I. MARCUS, Director. Heterocyclic; Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	9-07-71
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—L. J. BERCOVITZ, Director. Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping, and Treating Processes.	8-09-71
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—A. P. KENT, Director. Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	8-30-71
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—R. FRIEDMAN, Director. Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	8-03-71
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—N. ANSHER, Director. Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Illumination; Horology; Acoustics; Recorders; Weighing Scales.	4-19-72
SPECIAL LAWS ADMINISTRATION, GROUP 220—R. L. CAMPBELL, Director. Ordnance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedoes, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	12-13-71
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—J. F. COUCH, Director. Communications; Multiplexing Techniques; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	1-03-72
RECEPTACLES, SANITATION AND CLEANING, WINDING, AND MEASURING, GROUP 240—L. FORMAN, Director. Receptacles; Joint Packing; Conduits; Plumbing Fixtures; Textile Spinning; Food; Agitating; Cleaning; Pressing; Geometrical Instruments; Sound Recording; Winding and Reeling; Measuring and Testing; Indicating.	8-09-71
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—W. L. CARLSON, Director. Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	11-29-71
DESIGNS, GROUP 290—R. L. CAMPBELL, Director. Industrial Arts: Household, Personal and Fine Arts.	4-27-71
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—A. BERLIN, Director. Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	12-13-71
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—D. J. STOCKING, Director. Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus: Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders Woodworking; Tools; Cutlery; Jacks.	9-07-71
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—A. RUEGG, Director. Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Stationery; Information Dissemination.	11-18-71
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—M. M. NEWMAN, Director. Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Machine Elements; Couplings; Gearing; Bearings; Clutches; Power Transmission; Fluid Handling and Control; Lubrication.	1-03-72
MISCELLANEOUS CONSTRUCTIONS, TEXTILES AND MINING, GROUP 350—T. J. HICKEY, Director. Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Supports; Cabinet Structures; Centrifugal Separations; Coating; Textiles; Apparel and Shoes; Sewing Machines.	10-04-71

Expiration of patents: The patents within the range of numbers indicated below expire during January 1973, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents..... Numbers 2,728,913 to 2,733,438, inclusive
Plant Patents..... Numbers 1,442 to 1,455, inclusive

REISSUES

DECEMBER 26, 1972

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

27,533
IMPREGNATED DIELECTRIC SYSTEMS

Eugene B. Cox, Fairfield, Conn., assignor to General Electric Company

Original No. 3,530,561, dated Sept. 29, 1970, Ser. No. 746,427, July 22, 1968, which is a division of Ser. No. 659,133, Aug. 8, 1967, now Patent No. 3,450,968, dated June 17, 1969, which in turn is a division of Ser. No. 587,835, Oct. 19, 1966, now Patent No. 3,363,156, dated Jan. 9, 1968, which is a continuation-in-part of Ser. No. 508,529, Nov. 18, 1965 and Ser. No. 513,240, Dec. 13, 1965. Application for reissue Apr. 12, 1971, Ser. No. 133,113

Int. Cl. H01g *13/00*

U.S. Cl. 29—25.42 15 Claims

Non-porous [polyolefin materials are] *polypropylene is uniformly or* essentially completely impregnated with a dielectric liquid impregnant to provide an improved dielectric, insulating system.

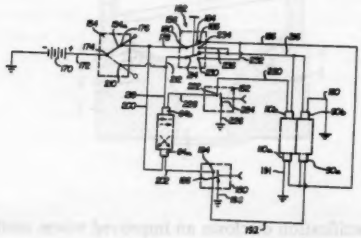
27,534
CONTROL SYSTEM FOR CONCRETE PUMP

Aaron M. Schaible, deceased, late of West Terre Haute, Ind., by J. I. Case Company, assignee, Racine, Wis.

Original No. 3,494,290, dated Feb. 10, 1970, Ser. No. 746,048, July 19, 1968. Application for reissue Jan. 11, 1971, Ser. No. 105,746

Int. Cl. F04b *17/00, 39/08*

U.S. Cl. 417—342 7 Claims



An electro-pneumatic control system for a concrete pump having a pair of power cylinders respectively connected to delivery lines each having an outlet valve therein. Each delivery line has a supply line connected thereto with a supply valve located in each supply line. Pressure fluid is supplied to the power cylinders and to the respective valves through electrically actuated fluid control valves which are controlled by a pair of pressure switches, a manual reversing switch and an automatic reversing switch so that normal reversal of the power cylinders occurs at the end of each stroke after the closing of all of the valves and manual reversal may be achieved at any time in the cycle.

27,535
METHOD AND DEVICE FOR DETERMINING THE QUANTITY OF DREDGING SPOIL TO BE PAID

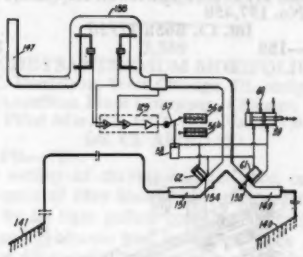
Romke van der Veen, Jutphaas, Netherlands, assignor to N.V. Ingenieursbureau voor Systemen en Octrooien "Spanstaal," Rotterdam, Netherlands

Original No. 3,554,009, dated Jan. 12, 1971, Ser. No. 817,691, Apr. 21, 1969. Application for reissue July 19, 1971, Ser. No. 164,153

Claims priority, application Netherlands, Apr. 24, 1968, 6805777

Int. Cl. G01n *9/26, 15/06*

U.S. Cl. 73—61 R 15 Claims



A method and apparatus are disclosed for measuring the quantity of dredging spoil. A flow of the spoil and water is guided vertically upwards along a first flow section and downwards along a second flow section. Pressure differentials between vertically spaced points on each flow section are obtained and added. The product of the pressure differential and flow velocity is integrated during the period in which the dredging spoil is being conveyed.

27,536
METHOD AND SUCTION DREDGING INSTALLATIONS FOR CONVEYING DREDGING SPOIL

Romke van der Veen, Jutphaas, and Jan de Koning, Amsterdam, Netherlands, assignors to N.V. Ingenieursbureau voor Systemen en Octrooien "Spanstaal," Binnenweg, Rotterdam, Netherlands

Original No. 3,554,010, dated Jan. 12, 1971, Ser. No. 817,692, Apr. 21, 1969. Application for reissue July 19, 1971, Ser. No. 164,154

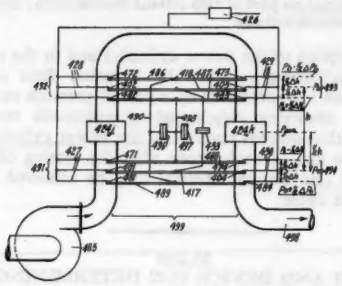
Claims priority, application Netherlands, Apr. 24, 1968, 6805778

Int. Cl. G01n *9/26, 15/06*

U.S. Cl. 73—61 R 22 Claims

In a method and apparatus for measuring the quantity of a suspension of dredging spoil and water, means are

provided to compensate for the presence of air in the suspension. The measure compensation is derived by taking pressure measurements of at least two flow sections in the system at which the prevailing pressures are different.



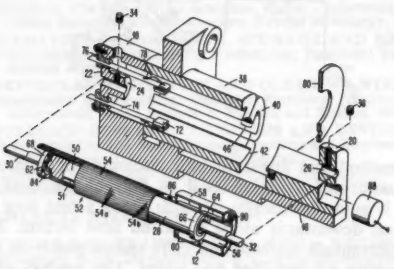
27,537
MOTION CONTROL DEVICE

Gene A. Fisher, Lafayette, and Howard E. Van Winkle, Boulder, Colo., assignors to International Business Machines Corporation, Armonk, N.Y.

Original No. 3,490,672, dated Jan. 20, 1970, Ser. No. 737,662, June 17, 1968. Application for reissue Nov. 10, 1971, Ser. No. 197,450

Int. Cl. B65h *17/20*

U.S. Cl. 226—188 **8 Claims**



A motion control device including an electric motor having an integral armature and driving capstan assembly. The capstan is mounted directly on the armature adjacent one end and the assembly is rotatably mounted on a stationary mandrel positioned at the rotational axis of the device.

27,538
CUTTING APPARATUS FOR CLOTH SPREADING MACHINE

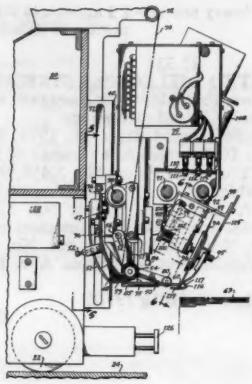
Thomas W. Martin and Albert F. Warner, Nashville, Tenn., by Arthur J. Rebrovick, Cutters Machine Company, Inc., assignee

Original No. 3,503,604, dated Mar. 31, 1970, Ser. No. 655,407, July 24, 1967. Application for reissue Dec. 8, 1971, Ser. No. 206,220

Int. Cl. B26d *1/18*; B65h *29/46*

U.S. Cl. 270—31 **8 Claims**

A transversely reciprocating cutter mounted on the mobile frame of a cloth spreading machine and cooperating with a spreader blade in order to cut the cloth after a layer of cloth has been spread. The spreader blade is also adapted to cooperate with a catcher mechanism for removing the cut end of the cloth from the spreader blade.



27,539
WORM MELTER AND EXTRUDER

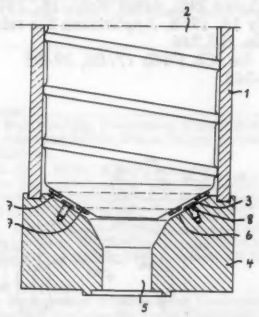
Wilhelm Schwalm, Frankfurt am Main, Germany, assignor to Vickers-Zimmer Aktiengesellschaft Planung und Bau von Industrieanlagen, Frankfurt am Main, Germany

Original No. 3,496,604, dated Feb. 24, 1970, Ser. No. 675,987, Oct. 17, 1967. Application for reissue Oct. 29, 1970, Ser. No. 85,314

Claims priority, application Germany, Oct. 31, 1966, V 32,234

Int. Cl. B28b *27/02*

U.S. Cl. 259—191 **4 Claims**



The specification discloses an improved worm melter or extruder for highly viscous plastic melts which normally flow in laminar fashion. The discharge end of such melter or extruder is usually formed by an end surface of a worm and an inside surface of a mouthpiece. The present invention provides means projecting from said end surface and said inside surface to break up the melt passing through the discharge end to effect a turbulence and mixing within the melt to produce a more uniform product.

PLANT PATENTS

GRANTED DECEMBER 26, 1972

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

3,277
CHRYSANTHEMUM PLANT

Grace H. Mack, New Canaan, Conn., and Walter H. Jessel, Jr., Doylestown, and William E. Duffett, Akron, Ohio, assignors to Grace H. Mack, New Canaan, Conn.

Filed Mar. 30, 1971, Ser. No. 129,646
Int. Cl. A01h *5/00*
U.S. Cl. Plt.—75 **1 Claim**

1. A new and distinct cultivar of chrysanthemum characterized particularly as to its uniqueness when compared to the cultivar Early Gold by its ¾" larger flowers, stronger stems, more decorative flower form, 10 days longer keeping quality, lighter yellow color, taller, more spreading, more prolific habit, lighter colored and larger foliage, more prominent stipules, and less leaf serration.

3,278
CHRYSANTHEMUM PLANT

Grace H. Mack, New Canaan, Conn., and Walter H. Jessel, Jr., Doylestown, and William E. Duffett, Akron, Ohio, assignors to Grace H. Mack, New Canaan, Conn.

Filed Mar. 30, 1971, Ser. No. 129,647
Int. Cl. A01h *5/00*
U.S. Cl. Plt.—75 **1 Claim**

1. A new and distinct cultivar of chrysanthemum characterized particularly as to its uniqueness when compared to the cultivar White Grandchild by its ¼" larger flowers which have a more ivory color which does not tinge pink with age, 3" shorter habit, lighter foliage, a more deeply indented leaf with a coarser serration to the leaf margin, more prominent stipules, and 6 days longer keeping quality under outdoor conditions.

3,279
CHRYSANTHEMUM PLANT

Walter H. Jessel, Jr., Doylestown, and William E. Duffett, Akron, Ohio, assignors to Yoder Brothers, Inc., Barberton, Ohio

Filed Feb. 3, 1971, Ser. No. 112,489
Int. Cl. A01h *5/00*
U.S. Cl. Plt.—78 **1 Claim**

1. A new and distinct cultivar of chrysanthemum characterized particularly as to its uniqueness when compared to the cultivar Shining Light by its ½" smaller flowers, darker, more opaque golden yellow flower coloration, fewer disc or perfect florets, less pollen, 3–4" shorter, and its more dense and prolific habit, thereby providing more resistance to lodging or falling over outdoors, less indented foliage with less serration, brighter green foliage, better frost tolerance, approximately twice the number of breaks from a pinch therefore producing a fuller, denser plant even though the spread or diameter is approximately the same, its 2–3 days earlier natural flowering outdoors, and its more compact and shapely pot habit when used in a spring pot flowering program in the greenhouse.

3,280
CHRYSANTHEMUM MORIFOLIUM

Robert E. Danielson, West Chicago, Ill., assignor to Pan-American Plant Company, Chicago, Ill.

Filed Mar. 22, 1971, Ser. No. 127,018
Int. Cl. A01h *5/00*
U.S. Cl. Plt.—78 **1 Claim**

A new variety of chrysanthemum plant originating as a yellow sport of May Shoesmith (unpatented) and characterized by its light yellow coloring, its very large ball-flower type of blooms and its eleven week year-around response to photoperiod culture as a greenhouse plant.

PATENTS

GRANTED DECEMBER 26, 1972

GENERAL AND MECHANICAL

3,707,004
BALLISTIC RESISTANT PROTECTIVE GUARD

John R. Kapitan, and Christine S. Kapitan, both of 9882 Kentucky Drive, Lakewood, Colo.

Filed Feb. 2, 1971, Ser. No. 111,861
Int. Cl. F41h *1/02*
U.S. Cl. 2—2.5 16 Claims

A bulletproof, shatterproof and shock-resistant guard to afford complete protection of the head, face, neck and upper torso of the human body. The guard incorporates an integral, transparent domelike top which is supported not by the head and neck but by the shoulders of the wearer thereby allowing unhampered head movements and unrestricted vision. As a defensive one-piece encasement for the head, neck and upper torso, the guard can be used by soldiers, sailors, policemen, firemen, civil defense workers, guards, and others engaged in hazardous occupations. In a modified embodiment the guard comprises a supplemental transparent safety hood of essentially the same construction as the basic protective piece but adapted for use by the industrial worker for protection against the impact hazards that might be encountered in a dangerous environment. The safety hood, like the basic protective piece, rests on the shoulders of the wearer, is transparent, and allows free head movement and unrestricted vision.

3,707,005
ELASTIC GLOVES

Harry Joseph Giambrone, Kettering, Ohio, assignor to Baxter Laboratories, Inc., Morton Grove, Ill.

Division of Ser. No. 868,331, Oct. 22, 1969, Pat. No. 3,613,172. This application July 15, 1971, Ser. No. 162,862
Int. Cl. A41d *19/00*
U.S. Cl. 2—163 8 Claims

Elastic form-fitting surgical gloves and the like in which the center of the first joint of the thumb portion is transversely located forward of the palm of the hand shaped form, and is laterally located at one side of the finger portions, and in which the thumb portion bends at a traverse angle away from the palm and at a later angle toward the side of the thumb on which the finger portions are located.

3,707,006
ORTHOPEDIC DEVICE FOR REPAIR OR REPLACEMENT OF BONE

Jack C. Bokros, San Diego, and Willard H. Ellis, Leucadia, both of Calif., assignors to Gulf Oil Corporation, San Diego, Calif.

Continuation-in-part of Ser. No. 649,811, June 29, 1967, Pat. No. 3,526,005. This application Aug. 26, 1970, Ser. No. 67,148
Int. Cl. A61f *1/24*
U.S. Cl. 3—1 14 Claims

Prosthetic devices for repair of replacement of bone structure in a living body, and methods of orthopedic repair which employ such devices. The orthopedic devices comprise a substrate and a pyrolytic carbon coating on the substrate, which pyrolytic carbon coating is compatible with living tissue and which has a density of at least about 1.5 grams per cubic centimeter. Examples of suitable substrates are those which have a modulus of elasticity approximating that of natural bone such as polycrystalline carbon, and fiber aggregates such as carbon fiber aggregates and refractory wire metal screens. The pyrolytic carbon coating of the orthopedic devices may be polished to provide an effective wear surface, while the surface roughness of the as-deposited coating may be employed to achieve a bond with natural bone tissue. The pyrolytic carbon coating is preferably isotropic and may be doped with a suitable carbide-forming element, such as silicon, to provide additional structural strength and wear resistance.

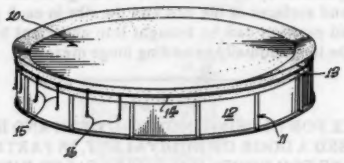
3,707,007
POOL COVER ARRANGEMENT

Richard M. Trostler, 1730 Woodbend Drive, Claremont, Calif.

Filed July 14, 1971, Ser. No. 162,547
Int. Cl. E04h *3/16, 3/18*
U.S. Cl. 4—172.14 5 Claims

A pool cover arrangement for above-ground swimming pools, in which arrangement a flexible pool cover is disposed over the pool surface with its peripheral edge draped over the exterior sides of the pool, the pool cover being held in position

by a line secured under tension about the exterior of the pool and overlying the peripheral edge of the pool cover. Storage straps are secured to a section of the line and are utilized to store the pool cover when it is folded, the cover when stored



hanging on the outside of the pool. The tension in the line is such as to permit a roller device to be inserted between the line and the pool walls and moved about the entire perimeter of the pool, facilitating the pool cover being released from or secured by the line.

3,707,008

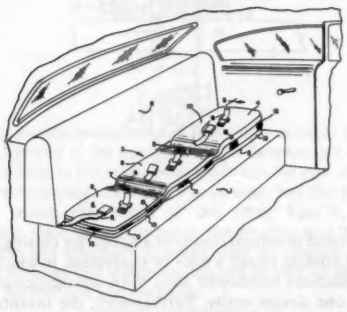
AUTOMOTIVE SEAT PAD FOR USE BY CHILDREN

Jack J. Fellin, and Karin E. Fellin, both of 1495 West 24th Place, Eugene, Oreg.

Filed Dec. 31, 1970, Ser. No. 103,118

Int. Cl. A47g *7/06*; A47d *1/10*

U.S. Cl. 5—345 **4 Claims**



A seat pad for placement on an automobile seat enabling children or other users of same to sit at a substantially normal eye level. The pad includes integral sections with each section being adjustable to provide the seating height desired. The pad includes openings for the passage of the automobiles seat belts which in addition to their normal function serve to retain the pad in place. Each section of the pad receives insertable layers of resilient foamed material the number and thicknesses of which will determine the effective seating height. The sidewalls of the pad are of a pliable nature to permit varying of the pads seating surface.

3,707,009

RESILIENT FURNITURE SUPPORT STRUCTURE

Karl A. Wagner, Schramelstrasse 43, 8 Munich 60, Germany

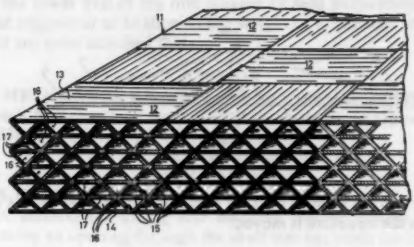
Filed Aug. 21, 1970, Ser. No. 66,025

Claims priority, application Germany, Aug. 28, 1969, P 19 43 832.5

Int. Cl. A47c *27/00*

U.S. Cl. 5—355 **15 Claims**

Filling support material used in furniture, such as beds and chairs within covering made from resilient material such as plastic having planar form and parallel elongate cavities in plural layers to provide spring like action. The filling structure can be modular and interengaged by lugs and sockets or suita-



ble bonding. Within the elongate cavities load bearing ribs can be included to provide additional firmness.

3,707,010

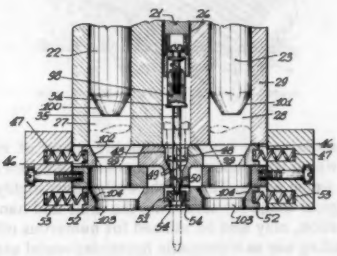
MACHINE FOR ASSEMBLING NAILS AND SEALING WASHERS

Walter F. Gronwald, 7680 7th Avenue, Ville St. Michel, Montreal, Quebec, Canada

Filed Nov. 9, 1970, Ser. No. 87,760

Int. Cl. B23p *19/08*

U.S. Cl. 10—155 **12 Claims**



A machine is disclosed for applying sealing washers to nails in an automatic and rapid manner. A plurality of plungers are reciprocally mounted in bores in a block and means are provided for imparting reciprocating movement simultaneously to the plungers. Means are provided in one of the bores for positioning and retaining a nail and a washer in axial alignment therein. The plunger in the bore engages the nail head to drive its shank through the washer. The positioning means for the nail and washer are appropriately actuated by the other plungers to accomplish the operation and ultimately permit ejection of the assembled nail and washer. Means are provided for feeding a row of nails to the machine. Means are also provided for forming and feeding a row of washers to the machine. The various operations are closely integrated and carried out by means of a single driving shaft.

3,707,011

BRACING APPARATUS FOR MOVEMENT OF A BRIDGING WORK

Pierre Launay, Versailles, France, assignor to Compagnie Industrielle de Travaux, Paris, France

Filed March 1, 1971, Ser. No. 119,709

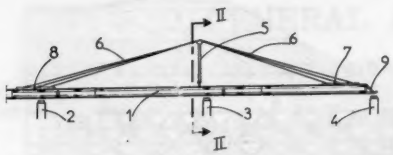
Claims priority, application France, March 11, 1970, 7008699

Int. Cl. E01d *1/00*

U.S. Cl. 14—1 **3 Claims**

The unsupported end of a bridging structure being moved from a support to the next support is braced by cables extend-

ing from the unsupported end over a mast to the inshore end of the structure. Hydraulic means at the foot of the mast raise



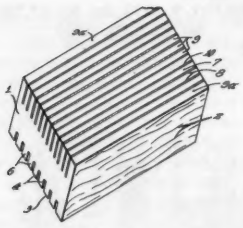
and lower the mast to provide compensating forces on the cables as the structure is moved.

3,707,012

DISPOSABLE SCRUB BRUSH

Kenneth R. Lane, Salt Lake City, Utah, assignor to LeVoy's Inc., Salt Lake City, Utah

Filed Nov. 18, 1968, Ser. No. 776,507
Int. Cl. A47k *7/03*
U.S. Cl. 15—104.93 **6 Claims**



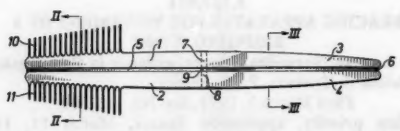
A disposable scrub brush, preferably made of chemical foam, and which is sufficiently economical to warrant discarding after a single usage. The brush, while being highly desirable for surgical usage for scrubbing the arms and hands prior to an operation, may also be utilized for numerous other purposes including use as a cosmetic brush, industrial usage, and many others as will be apparent to one skilled in the art. The brush carries its own soap or detergent supply and this, of course, may be varied in accordance with the intended usage of the brush.

3,707,013

DISPOSABLE BRUSH-LIKE CLEANING UTENSILS, PARTICULARLY INTENDED FOR DENTAL HYGIENE PURPOSES

Nils Arne Erkers, Styckjunkaregatan 7, 114 34 Stockholm, Sweden

Filed Oct. 23, 1970, Ser. No. 83,531
Claims priority, application Sweden, Oct. 24, 1969, 14607/69
Int. Cl. A46b *15/00*
U.S. Cl. 15—167 R **6 Claims**



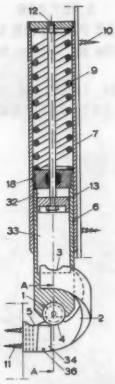
A brush-like plastic cleaning utensil having a handle portion and brush portion moulded in one piece, wherein said handle portion comprises at least two pair of longitudinally extending ribs, longitudinally extending hinge means holding the ribs in each pair together, hinge means connecting said pairs of ribs at adjacent end surfaces of said ribs with each of said hinges means being integral with the ribs, and the brush portion comprising laterally outwardly extending bristle-like projections at the end of each one of said ribs in one of said pair so that the pairs of ribs can be brought into abutment with each other in a folded position by rotation about the hinge means at the adjacent end surfaces of the ribs and the ribs in each pair in the extended position can be brought into abutment by rotation about the longitudinally extending hinge means.

3,707,014

DEVICE FOR CLOSING, HOLDING OPEN AND HOLDING CLOSED A DOOR OR EQUIVALENT, IN PARTICULAR ONE FOR DOORS WITH CONCEALED HINGES

Mauno Kalevi Koivusalo, Tilhentie 21 as. 234, Turku 31, Finland

Filed Oct. 9, 1970, Ser. No. 79,562
Int. Cl. E05f *3/10*
U.S. Cl. 16—52 **20 Claims**



The present invention concerns a device for closing, holding open and holding closed a door or equivalent, in which device all the functions mentioned have been advantageously combined in one device entity. Furthermore, the invention concerns such a combination of a hinge of a door or equivalent and a device for closing, holding open and holding closed the same which can be countersunk out of sight in the door and/or its frame so that all these devices are invisible when the door is closed. When a device according to the invention is used, no particular device, provided with a turning handle, for keeping it closed need be installed because also this function has been combined with the other functions of the device.

3,707,015

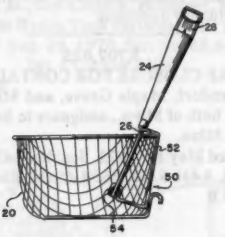
DETACHABLE HANDLE ASSEMBLY FOR COOKING UTENSILS

Edmund M. Maynard, Santa Monica, Calif., assignor to Gaydell, Inc., Santa Monica, Calif.

Filed Dec. 23, 1970, Ser. No. 100,925
Int. Cl. A47b *95/02*
U.S. Cl. 16—114 **9 Claims**

A detachable handle for cooking utensils in which the handle may take the form of a thermometer for indicating the cooking temperature in the interior of the utensil. Two exemplary forms of mounting clips for detachably securing a handle having an elongate tubular stem to a pot or wire mesh deep fry basket are disclosed. The elongate tubular stem is formed with a pair of radially projecting axially extending ribs near its distal end which cooperate with the mounting clip to

resiliently retain the handle in a fixed relationship to the utensil. The stem preferably takes the form of the temperature

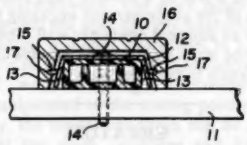


sensing probe of a thermometer which carries a scale at the upper end of the handle.

3,707,016
STRAP HANDLE ANCHORAGE

Edward H. Smoot, Holcomb, N.Y., assignor to The Schlegel Manufacturing Company, Rochester, N.Y.

Filed June 21, 1071, Ser. No. 154,740
Int. Cl. A47b *95/02*
U.S. Cl. 16—125 **5 Claims**

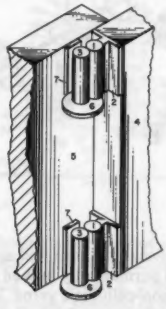


A strap handle is anchored in place by a retainer formed to straddle the end of the handle so that a fastener can be driven through a hole in the retainer and through the end of the handle into a mounting structure. The retainer has fins projecting outward along the edges of the strap handle, and an escutcheon plate shaped to cover the retainer and the end of the handle has internally opening slots to receive and slide over the retainer fins which are shaped to lock in the slots to hold the escutcheon plate in place.

3,707,017
MAGNETIC HINGE

Elmer G. Paquette, Madison, Wis., assignor to Bjorksten Research Laboratories, Inc.

Filed Nov. 20, 1970, Ser. No. 91,493
Int. Cl. E05d *7/02*
U.S. Cl. 16—170 **1 Claim**



Hinge for a magnetically held door, which can be very readily detached and reversed. This hinge is based on a design where two magnetically attracting rollers, rods or cylinders are placed in parallel positions contacting each other lengthwise, one fixed, the other one resting on a shelf attached to the lower end of the first magnet or held perpendicular to said magnet so as to support the weight of the second magnet and any door attached to it.

3,707,018
METHOD FOR KILLING AND BLEEDING POULTRY

Ralph S. Zebarth, Kansas City, Mo., assignor to Gainesville Machine Company Inc., Gainesville, Ga.

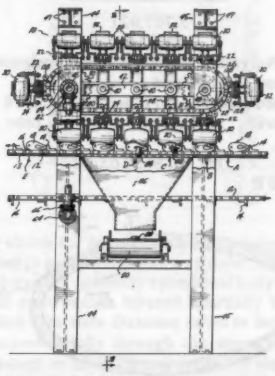
Filed Dec. 30, 1969, Ser. No. 889,305
Int. Cl. A22c *21/00*
U.S. Cl. 17—45 **6 Claims**

A method for killing and bleeding poultry consisting of forming an opening through the skull into the brain cavity of a bird, and allowing it to bleed through said opening.

3,707,019
APPARATUS FOR REMOVING VISCERA FROM A FISH

Gary K. Wiggins, Seattle, Wash., assignor to Marine Construction & Design Co., Seattle, Wash.

Filed Feb. 13, 1970, Ser. No. 11,092
Int. Cl. A22c *25/14*
U.S. Cl. 17—58 **28 Claims**



Apparatus utilizing compressive force externally applied by a roller or other mechanical means advanced headward along a fish extrudes the roe (substantially intact), milt-producing organs and other entrails therefrom while the fish is being conveyed for further processing after beheading in a processing plant. In the disclosed embodiment recirculating presser rollers in turn are brought to bear on individual fish advancing sidewise in succession on a conveyor and while thus bearing on the fish are cam-advanced from an initial location near the tail end of the body cavity toward the head end thereof so as to progressively extrude the viscera out the opened head end.

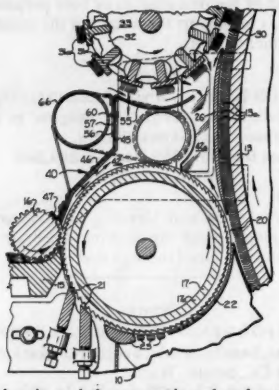
3,707,020
APPARATUS FOR REDUCING ACCUMULATION OF WASTE AND DISPOSING OF WASTE IN CARDING MACHINES

Richard Gordon Stewart, Neaton Mersey, near Manchester, England, assignor to Parks-Cramer (Great Britain) Ltd., Oldham, Lancashire, England

Filed Sept. 14, 1970, Ser. No. 72,079
Claims priority, application Great Britain, Oct. 14, 1969, 50,445/69
Int. Cl. D01g *15/76*
U.S. Cl. 19—107 **2 Claims**

To reduce the liberation of dust and fly from the taker-in and adjacent areas of a carding machine, the usual taker-in cover is eliminated and a housing means, defining an expansion chamber of substantial volume in open communication with the upper portion of the taker-in, is positioned between

the revolving flats, the taker-in feed roll, the taker-in and the main cylinder back plate, and air is continuously exhausted



from the taker-in and the expansion chamber to relieve pressure incident to rotation of the taker-in while thereby removing any liberated dust and fly from the chamber.

3,707,021

STRAPS

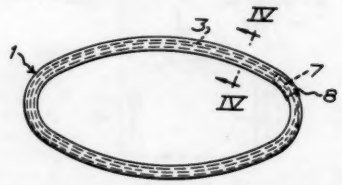
Ruben Henry Norrman, Malmo, Sweden, assignor to Spanset Inter AG, Basel, Switzerland

Filed June 16, 1971, Ser. No. 153,774

Claims priority, application Sweden, June 17, 1970, 8374/70

Int. Cl. B65d *63/00*

U.S. Cl. 24—16 R **1 Claim**



A strap consisting of a core of one or more skeins and a protective covering of flexible material around the core, said covering consisting of a hose or tube with an unbroken seamless wall.

3,707,022

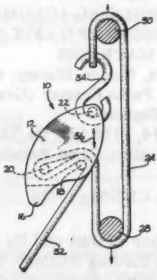
TIE DOWN CLAMP

Alan Diehl, 11144 Wystone Avenue, Northridge, Calif.

Filed Sept. 23, 1970, Ser. No. 74,681

Int. Cl. F16g *11/14*; **A44b** *11/02*

U.S. Cl. 24—115 J **4 Claims**



A rope tie down clamp which employs a dual pin arrangement upon which the rope is wound, the arrangement being such that in use the tie down force being transmitted through the clamp is substantially lineal, the dual pin arrangement causing the rope to frictionally bind upon itself during use, release of the clamp being effected by movement of the clamp housing in a particular direction.

3,707,023

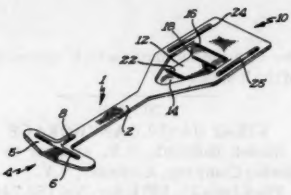
FLAP CLOSURE FOR CONTAINERS

James L. Pfaffendorf, Maple Grove, and Marlyn D. Johnson, Minneapolis, both of Minn., assignors to Safco Products Co., Minneapolis, Minn.

Filed May 14, 1971, Ser. No. 143,540

Int. Cl. A44b *9/00*; **B65d** *45/00*; **E65c** *19/18*

U.S. Cl. 24—85 B **14 Claims**



An elongated, flexible strap having an enlarged, T-shaped locking head at one end and an attached locking tongue on the opposite end is utilized to hold foldable closure flaps of a fiberboard container in a closed position by engaging the locking head in a slot in a closure flap, extending the strap over one edge of the container and engaging the locking tongue in a slot in an adjacent container wall. The locking tongue is offset from the strap and extends towards the locking head from its connection to the strap body.

ERRATUM

For Class 28—1 see:
Patent No. 3,707,299

3,707,024

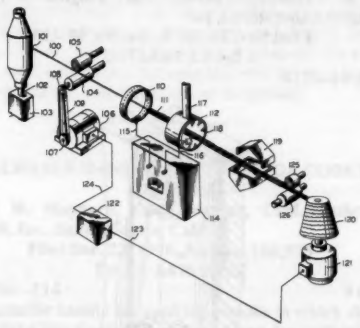
METHOD FOR ELECTROSTATICALLY BULKING AND IMPREGNATING STAPLE YARNS

Mayer Mayer, Jr., New Orleans, and Albert Baril, Jr., Metairie, both of La., assignors to The United States of America as represented by the United States Department of Agriculture

Filed March 31, 1971, Ser. No. 129,735

Int. Cl. D02g *1/00*; **D02j** *1/20*; **D06m** *13/00*

U.S. Cl. 28—75 WT **3 Claims**

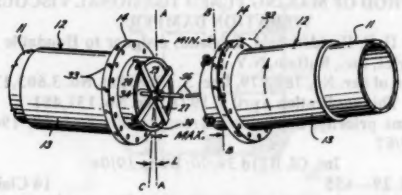


Chemical and physical methods and apparatuses have been employed to impart permanently bulked configuration to cellulosic and certain non-cellulosic yarns. This has been accomplished by passing the yarn through an electrostatic field either before or after impregnating the yarn with certain chemical crosslinking formulations.

3,707,025
APPARATUS FOR JOINING PIPES IN A HOSTILE ENVIRONMENT

William E. White, Jr., and Lloyd E. Billingsly, both of Houston, Tex., assignors to Hydro Tech Services, Inc., Houston, Tex.

Filed Aug. 20, 1970, Ser. No. 65,648
Int. Cl. B23p 19/00
U.S. Cl. 29—200 P 8 Claims

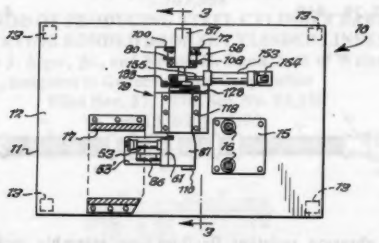


Apparatus for joining the ends of two work pipes in a generally hostile environment and wherein the pipes are generally not parallel. The method includes loosely mounting work couplings on each of the work pipe ends and with each of the work couplings having biased flanges arranged to accommodate the bend which will occur in the pipe when the coupling is completed and wherein the couplings will have to be rotated relative to each other to arrive at the proper angular relationship therebetween. The work pipes are moved to the position such that the axes thereof intersect. The method includes constructing a model, preferably in a favorable environment, which is positionally representative of the work pipe ends and work couplings. Thereafter, the model couplings are manipulated to the mating position by trial and error. Preferably, the model couplings will be dimensionally representative of the work couplings and both the work couplings and the model couplings will have identical indicia, such as numerals, marked thereon. Once the mated position of the model couplings is known, the relative position of the indicia thereon is utilized to similarly manipulate the work couplings to the mating position, to thereby eliminate trial and error in aligning the work couplings in the hostile environment.

3,707,026
PLUG ASSEMBLING MACHINE

John F. Kopczynski, 1671 Sweeney Street, North Tonawanda, N.Y.

Filed Feb. 1, 1971, Ser. No. 111,278
Int. Cl. H01r 43/04
U.S. Cl. 29—203 D 18 Claims

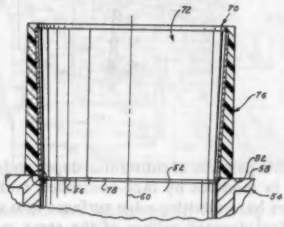


A machine for effecting a plurality of operations on a plug having clamping bands thereon including a head having an opening for receiving the plug, a probe for determining whether the plug is in proper position in the head, a clamping member for securely clamping the plug in the head when it is in proper position in response to the action of the probe, a shaft journalled in bearings for mounting said head, a plurality of sleeves journalled on said shaft, a bending jaw mounted on each of said sleeves for engaging the clamping bands on the plug and bending them when said sleeves are rotated, a core in the shaft for providing a plurality of pneumatic conduits leading to the head and a bore for housing a plurality of electrical conductors leading to the head, whereby pneumatic pressure and electric current are conducted through the shaft to the head, and pneumatic and electrical circuits for automatically providing a sequence of operations whereby the clamping bands on the plug are bent in position, a screw is inserted through them to secure them in clamping position, the plug is rotated, an additional screw is automatically inserted into the plug, and the plug is released from clamping engagement with the head so that it may be withdrawn.

3,707,027
LOADING SLEEVE FOR INSTALLING A PISTON AND RING ASSEMBLY INTO A CYLINDER BORE

Lewis M. Davis, and Frank G. Warrick, both of Muskegon, Mich., assignors to Sealed Power Corporation, Muskegon, Mich.

Filed Nov. 12, 1970, Ser. No. 88,703
Int. Cl. B23p 19/04
U.S. Cl. 29—222 10 Claims

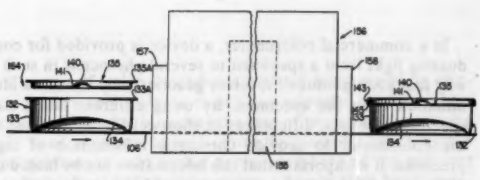


A loading sleeve for installing a piston equipped with radially compressible piston rings into a cylinder bore of an engine block. The sleeve is a generally cylindrical body open at its axially opposite ends and its tapered internally to squeeze the rings from their free state diameter down to bore diameter as the piston moves axially through the sleeve. The sleeve is adapted to mount on the marginal surface of the engine block surrounding the cylinder bore and has a necked down configuration forming an entrance lip for piloting the sleeve and thus the piston contained therein into the combustion chamber end of the cylinder bore. An all-plastic embodiment as well as a composite metal and plastic embodiment of the sleeve is disclosed.

3,707,028
METHOD OF MAKING ACTUATING CAPSULE FOR FLUID PRESSURE REGULATOR

Calvin L. Wilson, and John H. Fox, Jr., both of Chesterfield County, Va., assignors to Reynolds Metals Company, Richmond, Va.

Division of Ser. No. 735,722, June 10, 1968, Pat. No. 3,583,289. This application Jan. 7, 1971, Ser. No. 104,752
Int. Cl. B23q 17/00
U.S. Cl. 29—404 10 Claims



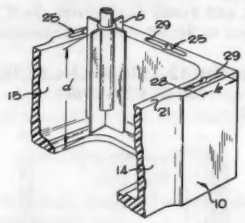
A method of making an enclosed actuating capsule for a fluid pressure regulator is provided by placing a plurality of

cooperating wall-forming members in an assembly chamber, controlling the environment within the chamber, and assembling the members in the controlled environment of the chamber to form the capsule and simultaneously provide the controlled environment within the capsule during its assembly to thus provide a fully calibrated capsule.

3,707,029
SUPERIMPOSED MODULAR CONSTRUCTION OF VAPORIZABLE PATTERNS

John T. Parsons, 205 Wellington, Traverse City, Mich.

Continuation-in-part of Ser. Nos. 867,980, Oct. 20, 1969, Pat. No. 3,635,124, and Ser. No. 874,930, Nov. 7, 1969, Pat. No. 3,625,280. This application Sept. 25, 1970, Ser. No. 75,538
Int. Cl. B23q *17/00*; B23p *11/02, 19/02*
U.S. Cl. 29—407 **6 Claims**

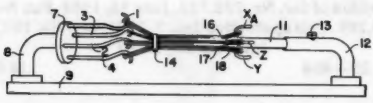


Vaporizable patterns of substantial depth and/or complexity are carved in modules by tape-controlled milling machines. The modules have abutting edge surfaces into which oversize bi-symmetrical dovetail splines of the same material are inserted. A standard depth for the modules is the working length of rotating cutter tools. The partial elasticity of the material makes assembly possible and gives the joint bend resistance to exclude foundry sand.

3,707,030
METHOD OF MAKING FIBER LIGHT-PIPE DIFFUSER FOR COLORIMETERS

Richard S. Hunter; John S. Christie, and Roland D. Robinson, all of Fairfax County, Va., assignors to Hunter Associates Laboratory, Inc.

Continuation of Ser. No. 705,702, Feb. 15, 1968, abandoned. This application Oct. 20, 1970, Ser. No. 82,499
Int. Cl. B23p *17/00*
U.S. Cl. 29—419 **2 Claims**

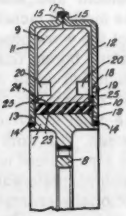


In a commercial colorimeter, a device is provided for conducting light from a specimen to several photocells in such a way that each photocell receives geometrically the same illumination from the specimen. By using different filters and spectral responses, differences in photocell signal are used in the colorimeter to provide chromatic information of high precision. It is important that this information not be biased by differences in geometric distribution of light to the different photocell positions. The light-conducting device comprises a bundle of internal light reflecting filaments (light fibers), the filaments of which are individually pre-set in place in the bundle in such a manner as to insure that light from each area of the specimen is distributed in the same proportion to each photocell.

3,707,031
METHOD OF MAKING TUNED TORSIONAL VISCOUS VIBRATION DAMPERS

Jeffrey Hall, Huddersfield, England, assignor to Houdaille Industries, Inc., Buffalo, N.Y.

Division of Ser. No. 780,779, Dec. 3, 1968, Pat. No. 3,603,172. This application April 5, 1971, Ser. No. 131,481
Claims priority, application Great Britain, Dec. 12, 1967, 56,365/67
Int. Cl. B21d *39/00*; B23p *19/04*
U.S. Cl. 29—455 **14 Claims**



A tuned torsional viscous vibration damper is made by bonding elastic spacer and tuning material to, and in the space between, torsionally movable members one of which is an inertia mass, assembling additional structure with the members to provide an enclosed working chamber, engaging a spacer of the material between working surfaces of the structure and one member, and filling viscous damping fluid into the working chamber and between said surfaces.

3,707,032
METHOD OF FORMING AN ABRASION RESISTANT HOSE ASSEMBLY

William Brunelle, Columbia City, Ind., and James W. Cartwright, Columbus, Ohio, assignors to The Weatherhead Company

Division of Ser. No. 793,304, Jan. 23, 1969, abandoned. This application Nov. 20, 1970, Ser. No. 91,305
Int. Cl. B23p *3/00, 19/04*
U.S. Cl. 29—460 **4 Claims**

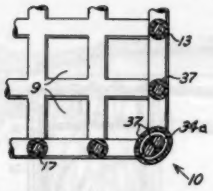
An abrasion resistant flexible hose assembly includes a length of flexible hose having hose end fittings attached to its ends and abrasion resistant means in the form of separate annular bumpers arranged along the hose in longitudinally spaced positions. Each bumper encircles a small portion of the length of the hose and cooperates with the other bumpers to protect the hose from abrading engagement with adjacent structures. The bumpers individually engage the hose with a shrink fit to maintain their spacing.

3,707,033

MANUFACTURING METHOD FOR MULTI-ELEMENT STRUCTURES

James M. Knott, Wellesley, Mass., assignor to Coatings Engineering Corporation, Natick, Mass.

Filed Aug. 24, 1970, Ser. No. 66,222
Int. Cl. B23p 3/00, 19/04
U.S. Cl. 29—460 18 Claims



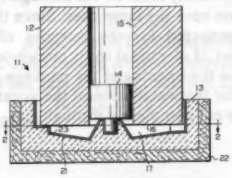
Disclosed is a method for fabricating multi-element latticed structures including temporary fastening of the elements and subsequent plastic encapsulation of the entire structure to provide structural integrity.

3,707,034

METHOD OF PRODUCING STEEL CYLINDER BARRELS HAVING BONDED BRONZE VALVE PLATES

Martin J. Alger, Jr., and Nelson H. Dunn, both of Watertown, N.Y., assignors to General Signal Corporation

Filed Nov. 27, 1970, Ser. No. 93,129
Int. Cl. B23k 19/00
U.S. Cl. 29—527.6 8 Claims



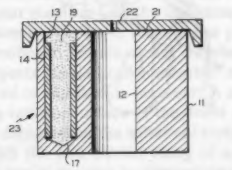
The disclosure concerns a process for providing the steel cylinder barrel of a piston pump or motor with an adherent, bronze valve plate. The finished valve plate is machined from a bronze member which is cast in place against one end of the cylinder barrel blank under conditions which effect a sound metallurgical and mechanical bond between the steel and the bronze.

3,707,035

METHOD OF PRODUCING STEEL CYLINDER BARRELS HAVING BONDED BRONZE CYLINDER LINERS

Martin J. Alger, Jr., and Nelson H. Dunn, both of Watertown, N.Y., assignors to General Signal Corporation

Filed Nov. 27, 1970, Ser. No. 93,130
Int. Cl. B23k 19/00
U.S. Cl. 29—527.6 8 Claims



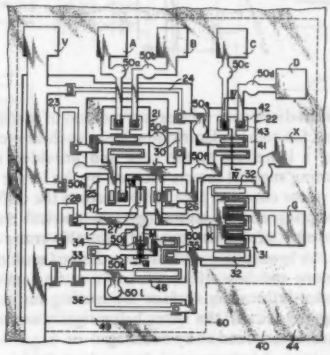
The disclosure concerns a method for producing bronze lined cylinder bores in the steel cylinder barrel of a piston pump or motor. The liners are machined from bronze sleeves which are slip fitted into blind bores in a cylinder barrel blank, enveloped by sand, and then melted, bonded and re-solidified in a non-oxidizing atmosphere.

3,707,036

METHOD FOR FABRICATING SEMICONDUCTOR LSI CIRCUIT DEVICES

Takahiro Okabe, Hachioji; Minoru Nagata, and Tsugio Makimoto, both of Kodaira, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Feb. 27, 1970, Ser. No. 15,135
Claims priority, application Japan, Feb. 28, 1969, 44/14620
Int. Cl. B01j 17/00
U.S. Cl. 29—574 5 Claims



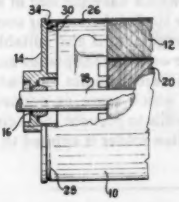
LSI circuit devices are fabricated by forming a plurality of unit cells having a relatively large number of circuit elements. The unit cells are tested and the cells having predetermined characteristics are selected. A portion of the selected unit cells are divided to form sub-unit cells. The sub-unit cells are then interconnected with or without undivided unit cells to form LSI circuit devices.

3,707,037

METHOD FOR ASSEMBLING ELECTRIC MOTORS

Giorgio Gutris, 49, Viale Certosa, Milan, Italy

Filed Nov. 3, 1970, Ser. No. 86,531
Int. Cl. H02k 15/00, 15/14, 15/16
U.S. Cl. 29—596 1 Claim

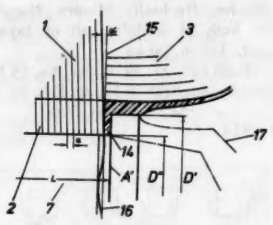


The specification describes a method for assembling electric motors comprising a casing and opposite head members co-axial therewith, including the step of permanently securing said head members to said casing by inwardly clinching the end portions of said casing to the periphery of the adjacent head member, and electric motors wherein their head members are permanently secured to the motor yoke casing according to the method.

3,707,038
METHOD FOR MANUFACTURING STATOR UNITS OF ELECTRIC ROTARY MACHINES

Stig Lennart Hallerback, 12 Blodboksgatan, Vastra Frolunda, Sweden

Filed Nov. 18, 1970, Ser. No. 90,728
Int. Cl. H02k 15/00, 15/14, 15/16
U.S. Cl. 29—596 2 Claims

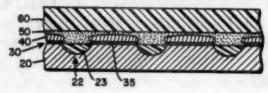


The present disclosure relates to a method of manufacturing a stator unit for rotary electric machines such as electric motors having a lamellate stator core and provided with cup-shaped bearing support means secured by the larger end relative to the stator core end face. To overcome the difficulties of such a mounting and to attain high geometrical and dimensional accuracy of the stator unit and the rotor assembly mounting, the invention provides a method of moulding on at the stator core end face a formation of a setting substance affording accurate locating surface for mating surfaces at the bearing support means, the latter being rigidly secured in the position thus determined as by bonding.

3,707,039
TERMINATION ARRANGEMENT FOR WIRE DEVICES

John R. Niemirovich, Royersford, Pa., assignor to Sperry Rand Corporation, Americas, N.Y.

Filed June 3, 1970, Ser. No. 42,942
Int. Cl. H05k 3/00
U.S. Cl. 29—625 6 Claims



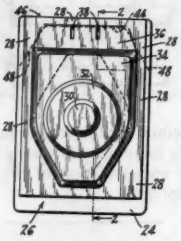
An arrangement for terminating elements such as plated wire memory devices ((which have the size of a human hair), wire resistor elements, or similar devices for connection to external circuitry. The arrangement is also suitable for coupling similar devices which are on different planes and are oriented either in parallel or at different angles. The arrangement includes positioning slots which serve as connecting lands as well as non-conducting walls to prevent short circuits between adjacent wires when molten solder is applied to the end of the wire.

3,707,040
SAFETY PACKAGE FOR ELECTRICAL LINE-CORD ACCESSORY AND METHOD OF INSTALLING ACCESSORY

Herbert G. Lehmann, 5 Kent Road, Easton, Conn.

Filed Nov. 16, 1970, Ser. No. 89,892
Int. Cl. H01r 43/00; B65d 73/02
U.S. Cl. 29—628 10 Claims

A method of installing an electrical line-cord accessory and a safety package adapted to contain said accessory for display and sales purposes. The electrical accessory is of the type intended to be inserted in a lamp cord, clock cord, radio cord or the like, and is so arranged that it requires snipping through of the cord by a scissors or knife, prior to the installation. This act, which is required on the part of the consumer, has a dangerous aspect if the cord is cut through without first pulling out the plug from the wall socket or receptacle. By packaging the accessory in a special safety package, this danger and likelihood of injury is eliminated, for the reason that the opening of the package requires the user to utilize, as an opening tool, the two-prong plug of the lamp, clock or radio. Thus,

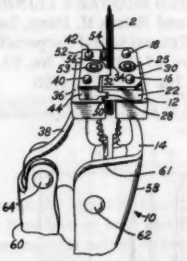


prior to opening the package the user or consumer reads the opening directions, instructing him or her to first pull out the plug from the wall receptacle, and then cut through the electric cord, thereafter utilizing the plug as a wrench or opening tool to remove the accessory from the package. After the package has been opened in this manner the consumer then finds further instructions enclosed therein, telling him or her that now the cord possibly must be cut through again, this time at the exact location near the lamp base. Since the cord has already been disconnected for the purpose of opening the package, the danger of electrical short circuit or shock is now eliminated. Prior to the opening of the package, the consumer is not aware that for the installation of the accessory the electrical cord must be cut completely through.

3,707,041
SHIELD TERMINATION APPARATUS

Raymond J. Ramsey, Mishawaka, Ind., assignor to The Bendix Corporation

Filed March 18, 1971, Ser. No. 125,664
Int. Cl. H02g 1/12
U.S. Cl. 30—91.2 6 Claims



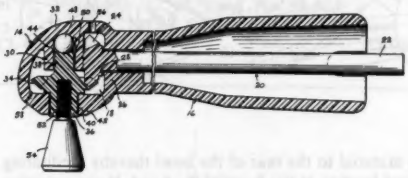
An apparatus for terminating a portion of an external woven shield of a shielded wire to be removed without damaging the insulation covering a center conductor of the shielded wire.

3,707,042

POWERED MEDICAL TOOL INCORPORATING MEANS FOR CLEANING THE SAME

Thomas E. Talaga, 3603 Michigan Court, Duneland Beach, Michigan City, Ind.

Filed Nov. 20, 1970, Ser. No. 91,312
Int. Cl. A61c 1/10
U.S. Cl. 32—27 5 Claims



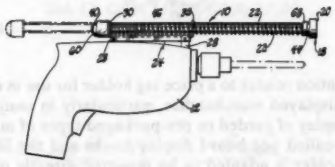
A powered tool utilized by physicians and dentists which includes a housing having a chamber therein. Gear means interconnecting drive and driven shafts are positioned within the chamber. The housing includes a passage which extends from the exterior of the housing into the chamber and through which cleaning fluid is drawn upon rotation of the drive shaft with the housing submerged in a cleaning fluid.

3,707,043

ALIGNMENT ASSEMBLY

David P. Jones, 3160 Second Avenue, Detroit, Mich.

Filed Jan. 12, 1970, Ser. No. 2,295
Int. Cl. B27g 23/00
U.S. Cl. 33—185 R 23 Claims



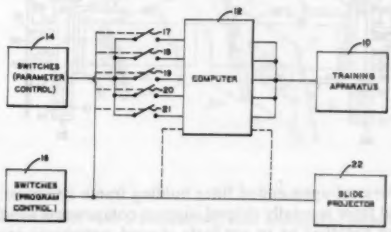
An alignment assembly for indicating the angle of incidence with respect to a workpiece including attachment means adapted to be attached to a device such as a portable hand drill. The assembly includes a central shaft interconnecting two balls. The ball at one end supports an input member for pivotal movement about the center of the ball while the ball at the other end supports an indicator member for pivotal movement about the center thereof. Three rods engage and interconnect the input member and the indicator member so that the indicator member pivots in response to pivotal movement of the input member. A female socket member having a spherical cavity supports the indicator member and a translucent dome is attached to the female member. A circular groove is disposed on the interior surface of the dome and a second circular groove is disposed on the spherical surface of the indicator member with the two circles being of equal diameter so that when they are in registry or concentric with one another the longitudinal axis of the assembly is perpendicular to a workpiece engaged by the input member.

3,707,044

SWITCHING DEVICE AND ASSOCIATED VISUAL DISPLAY FOR TRAINING APPARATUS

Victor Faconti, Jr., Binghamton, N.Y., and William C. Booth, Reisterstown, Md., assignors to The Singer Company, New York, N.Y.

Filed May 20, 1969, Ser. No. 826,178
Int. Cl. B64g 7/00; G09b 9/08
U.S. Cl. 35—12 8 Claims



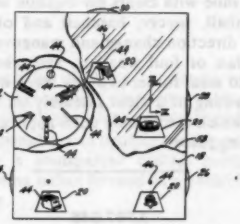
A system for use in conjunction with training apparatus such as an aircraft simulator, for example, to allow selective changes in the parameters affecting operation of the apparatus by providing a plurality of manually operable switch means, each being programmable to control various ones of such parameters, with a visual display which changes as the program is changed to indicate to an instructor the particular parameter which each switch is connected to control for that particular program.

3,707,045

TEACHING DEVICE

Patrick H. O'Hare, 80 Carrol Street, Pentwater, Mich.

Filed March 3, 1970, Ser. No. 16,142
Int. Cl. G09b 1/22
U.S. Cl. 35—74 1 Claim

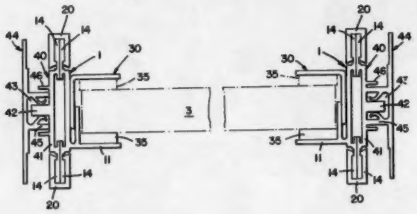


A teaching device having sets of conceptually related forms on a plurality of cards or wheels mounted behind a screen so that only one form from each card or wheel is visible at a given time and so that the cards or wheels are movable with respect to the screen. The rear sides of the cards or wheels have sets of colored edges or similar coded forms which are positioned behind a second screen with openings for one colored area from each card. The sets of colored areas are so related to the conceptually related forms that when one set of like colors is seen at the second screen, one set of conceptually related forms will be seen at the first screen.

3,707,046
UNIVERSAL FILTER HOLDING FRAME AND MEDIA ASSEMBLY

Kenneth W. De Baun, Novato, Calif., assignor to Servodyne Corporation

Filed Feb. 16, 1971, Ser. No. 115,522
Int. Cl. B01d *46/40*
U.S. Cl. 55—483 **8 Claims**

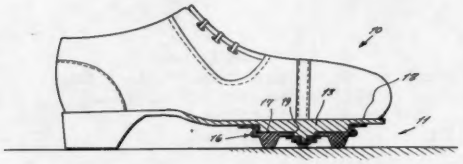


A universal open-ended filter holding frame structure is assembled from specially shaped support components which are snapped together or to similarly shaped peripheral seals or slides at duct or plenum chamber walls by semi-rigid channels that provide positive air seals between the assembled components. Interference type locking clips releasably hold filter media units in the holding frame structure.

3,707,047
SWIVEL ATHLETIC SHOE

Zygmund Nedwick, c/o Athletic Devices Inc., P.O. Box 161, Glen Cove, N.Y.

Filed Feb. 1, 1971, Ser. No. 111,453
Int. Cl. A43b
U.S. Cl. 36—2.5 R **3 Claims**



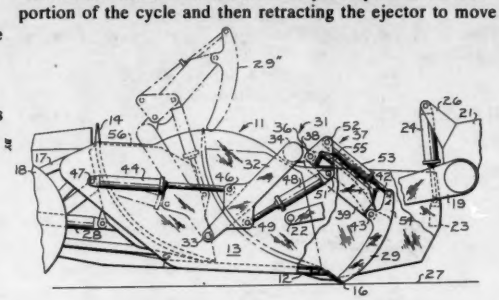
An athletic shoe with cleats for traction such as is used in games of football, soccer, baseball and other field sports where sudden direction change and maneuverability must be employed in fair or foul weather, and wherein such cleat gripping aids to meet force, to apply force or to avoid it, the invention consisting of a cleat assembly on the underside of the shoe, and which is rotatable upon application of relatively increased turning force.

3,707,048
METHOD OF OPERATING A SCRAPER HAVING A MANIPULATABLE APRON

Robert A. Peterson, San Leandro, Calif., assignor to Caterpillar Tractor Co, Peoria, Ill.

Division of Ser. No. 589,978, Oct. 27, 1966, Pat. No. 3,471,952, and a continuation of Ser. No. 839,414, July 7, 1969, abandoned. This application Sept. 2, 1970, Ser. No. 69,091
Int. Cl. E02f *3/75*
U.S. Cl. 37—126 AB **1 Claim**

In a scraper having an apron which may be advanced and retracted relative to the bowl in addition to being raised and lowered to provide a hoeing action and having a bucket type of ejector which may be advanced and retracted in the bowl, highly efficient loading is realized by advancing the ejector to receive the material which is loaded by the apron in the initial portion of the cycle and then retracting the ejector to move

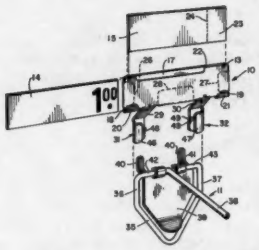


such material to the rear of the bowl thereby facilitating subsequent loading at the front of the bowl. During ejection, the apron may be scraped down along the forward surface of the ejector to dislodge material.

3,707,049
PRICE TAG HOLDER AND MOUNTING ADAPTER THEREFOR

David R. Thalenfeld, 162-41 Powell's Cove Boulevard, Beachurst, N.Y.

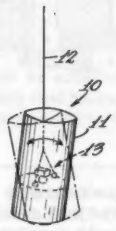
Filed Aug. 10, 1970, Ser. No. 62,275
Int. Cl. G09f *3/18*
U.S. Cl. 40—10 **6 Claims**



The invention relates to a price tag holder for use in connection with displayed merchandise, particularly in conjunction with the display of carded or pre-packaged types of merchandise on so called peg board display hooks and the like. The price tag holder is adapted to be mounted directly on a peg board display hook, so as to have immediate association with the merchandise suspended on the hook. Alternatively, the holder may be mounted at any convenient location on an apertured display board, by means of a novel adapter device, forming a part of the invention. The price tag holder of the invention is capable of highly economical manufacture and incorporates a number of unique and advantageous features of construction which enable it to be utilized in a highly efficient manner in conjunction with modern merchandising and inventory control programs. The price tag holder is a single piece unit which is cut and shaped to provide, on the front side thereof, a facility for the removable reception of a tag carrying pricing and other information for the consumer. The holder also has provisions on its back side for the slidable reception of a re-order tag intended primarily for the use of the store personnel and mounted to be just slightly visible over the back of the price tag holder. Further, the new price tag holder includes a novel facility for the visible retention of a stub of the re-order tag, providing a clear indication to store personnel that merchandise associated with the tag holder has been re-

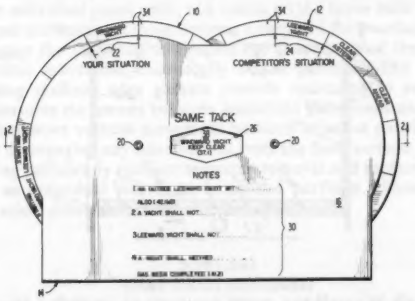
ordered. The tag holder of the invention is intended for use in extraordinarily large numbers, and therefore its unique features of construction are calculated to provide for a plurality of desirable merchandising functions while at the same time accommodating mass production manufacture at an extremely low price.

3,707,050
ROCKING DISPLAY DEVICE
Alois F. Schoenung, Naperville, Ill., assignor to Rapid Mountain and Finishing Company
Filed Nov. 27, 1970, Ser. No. 93,263
Int. Cl. G09f *11/00*
U.S. Cl. 40—30 **13 Claims**



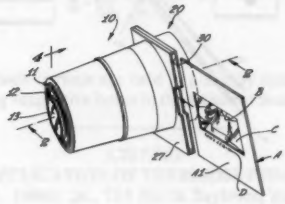
A device such as for use in an advertising display intended to be hung and rocked to attract the attention of a viewer. The device includes a self-contained power supply permitting the device to be installed independently of electrical outlet means.

3,707,051
RACING RULES CORRELATOR
Greg A. Field, Annapolis, Md., assignor to S and R Associates, Inc., Annapolis, Md.
Filed Feb. 22, 1971, Ser. No. 117,611
Int. Cl. G09f *11/04*; G09b *23/00*
U.S. Cl. 40—70 **8 Claims**



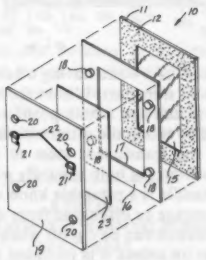
A pair of rotatable overlapping discs carrying data relative to two racing yachts are rotated relative to each other to a position indicative of the relative situation between the yachts to expose the appropriate racing rule governing their subsequent behavior.

3,707,052
SLIDE VIEWER
Thomas C. Clark, 8410 Gulana Avenue, Apt. 2, Playa del Rey, Calif.
Filed Oct. 1, 1968, Ser. No. 764,165
Int. Cl. G09f *11/30*
U.S. Cl. 40—63 A **6 Claims**



A slide viewer with a translucent rear window as principal illuminating source and having a translucent lateral front window for diffusely illuminating the front side of a slide binder when inserted in the slide viewer.

3,707,053
PICTURE SUPPORT WITH CONCEALED CONNECTORS
Takeo Itano, 6459 North Wayne Avenue, Chicago, Ill.
Filed March 12, 1971, Ser. No. 123,738
Int. Cl. G09f *11/10*
U.S. Cl. 40—158 **6 Claims**

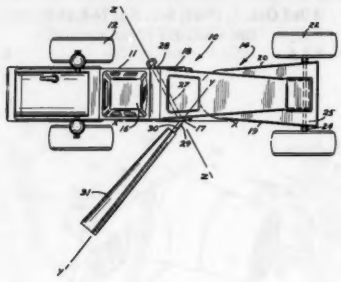


A picture support for displaying a picture with the transparent front panel secured to a supporting back panel by concealed connectors with the picture lying therebetween. The transparent front panel has an opaque coating on its inner surface surrounding a transparent central portion with the opaque coating being either formed as a peelable panel or as an applied coating.

3,707,054
TOY GRADER BLADE
Lee J. Pfeilsticker, Long Lake, Minn., assignor to Tonka Corporation, Minneapolis, Minn.
Filed Feb. 25, 1972, Ser. No. 229,297
Int. Cl. A63h *33/30*
U.S. Cl. 46—40 **3 Claims**

A miniature toy road grader having an elongated body supported on front and rear ground wheels for moving the body longitudinally along a line of travel, a grader blade mounted on the body intermediate the front and rear wheels to extend laterally at a trailing angle from one side of the body to engage the ground surface, the blade being pivoted to the body on an

axis substantially bisecting the angle between the blade in its lateral extension and the line of travel of the body whereby the



blade may be swung upwardly and forwardly about the axis to a transport position beside the body and parallel to said line of travel.

3,707,055

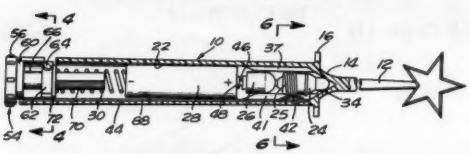
ILLUMINATED MAGIC WAND

Woodrow W. Pearce, 1200 Riverside Drive, Burbank, Calif.

Filed Feb. 25, 1971, Ser. No. 118,895

Int. Cl. A63h *33/26*

U.S. Cl. 46—228 **6 Claims**



A toy in the form of a wand having a handle part and an extending translucent stem part. Within the handle part is a battery, a mercury switch and a bulb positioned so that the bulb can be energized by tilting the wand with the light being transmitted through the translucent stem to its end. A contact member extends from the bulb inwardly within the handle. At the base of the handle is a rotatable knob which can actuate a contact disc to engage or disengage from the contact member so that the bulb circuit can be cut off when desired, so that the bulb does not go on unless it is intended that it should come on.

3,707,056

DECOMPOSABLE POLYOLEFIN AGRICULTURAL MULCH

Edward L. Cole, Fishkill; Howard V. Hess, Glenham, and Renato C. Pomatti, Beacon, all of N.Y., assignors to Texaco Inc., New York, N.Y.

Continuation-in-part of Ser. Nos. 833,138, June 13, 1969, abandoned, and Ser. No. 883,339, Dec. 8, 1969, and Ser. No. 23,501, March 27, 1970, which is a continuation-in-part of Ser. No. 611,233, Jan. 24, 1967, abandoned. This application May 10, 1971, Ser. No. 142,028

Int. Cl. A01g *7/00*

U.S. Cl. 47—9 **10 Claims**

The decomposition rate of polyolefin film used as an agricultural mulch is controlled by the incorporation therein of 3 to 20 percent of a cation exchanged sulfonated petroleum coke or cation exchanged wet air oxidized petroleum coke. The film also contributes ion exchange capacity to the soil, furnishes nutrients and improves the tilth of the soil. Other additives such as nematocides or fungicides can be incorporated in the film mulch.

3,707,057

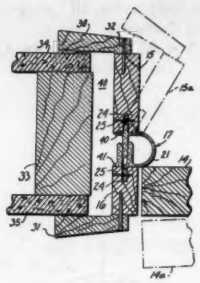
DOOR FRAME CONSTRUCTION

Donald V. Frydenberg, Arlington, Tex., assignor to Clary Corporation, San Gabriel, Calif.

Filed May 3, 1971, Ser. No. 139,772

Int. Cl. E06b *1/04*

U.S. Cl. 49—505 **1 Claim**



A preformed door jamb assembly wherein the door jambs are formed of two spaced jamb members having casing members attached thereto and a door stop of elastomeric material extending between the door jamb members. The flexible door stop member is U-shaped in cross section and is attached between the jamb members, permitting the jamb members to be moved relative to each other to facilitate installation in a rough wall opening and to accomodate walls of different thicknesses.

3,707,058

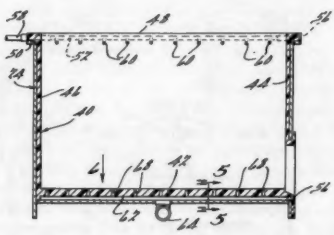
VIBRATORY FINISHING APPARATUS

Gordon H. Anderson; Albert Lea, and Raymond C. Ahlstrom, Geneva, Minn., assignors to King-Seeley Thermos Co., Ann Arbor, Mich.

Filed Feb. 3, 1971, Ser. No. 112,257

Int. Cl. B24b *31/06*

U.S. Cl. 51—163 **16 Claims**



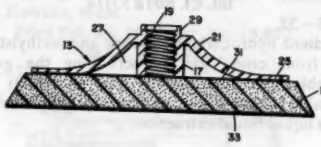
A molded liner for the tub of a vibratory finishing machine, the liner having fluid passage means formed interiorly thereof for spraying or discharging fluid into the tub during a finishing operation, and for subsequently draining the fluid therefrom.

3,707,059

PAD FOR DISC SANDERS

Alfred H. Burtch, Sanborn, and Halsey W. Buell, Niagara Falls, both of N.Y., assignors to The Carborundum Company, Niagara Falls, N.Y.

Filed March 2, 1970, Ser. No. 15,707
Int. Cl. B24d *17/00*
U.S. Cl. 51—358 **10 Claims**



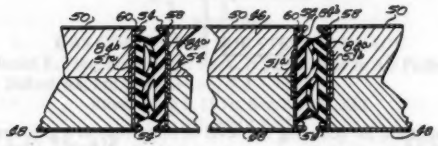
A sanding pad is made by adhesively joining a flexible, resilient disc and a relatively rigid backup member formed of a polycarbonate resin having mounting threads molded in the hub thereof.

3,707,060

BUILDING ASSEMBLY AND COMPONENTS

Charles L. Jansen, Jr., Bellevue, Wash., assignor to United States Gypsum Company, Chicago, Ill.

Filed Aug. 19, 1970, Ser. No. 65,067
Int. Cl. E04b *2/74*
U.S. Cl. 52—241 **18 Claims**



A plurality of erect panel units having complementary interfitting resilient gaskets along their vertical edges form a portable partition, a fixed retainer engages the upper ends of the panel units and permits movement of these upper ends transversely of the partition while permitting vertical movement of the individual panel units, and means on the lower ends of the panel units support these units on a carpeted floor surface and engage the carpeting to restrain the lower ends of the units against movement transversely of the partition. The interfitting resilient edge gaskets provide resistance to relative transverse movement between assembled panel units and permit relative vertical movement between adjacent panel units for disengaging any selected unit from the floor surface, while being sufficiently resilient to permit removal and replacement of an individual unit in an assembled partition without antecedent movement of the adjacent units.

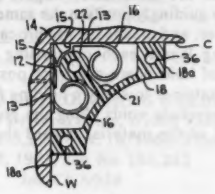
3,707,061

SNAP TRIM MOLDING

Harold J. Collette, 15 Chadwick Street, and Harry W. Grosser, 1309 Forrest Avenue, Ext, both of Jamestown, N.Y.

Filed April 23, 1971, Ser. No. 136,785
Int. Cl. E04c *2/38*; E04f *19/02*
U.S. Cl. 52—288 **11 Claims**

A snap trim molding or facing held in place by means of a resilient spring clip having inwardly turned coils and an inner saddle portion for engaging a beaded end of a retainer rib on the molding or facing. Also, corner molding elements for inside and outside corners are held in place by means of dowel pins engaging respective bores in the adjacent molding.

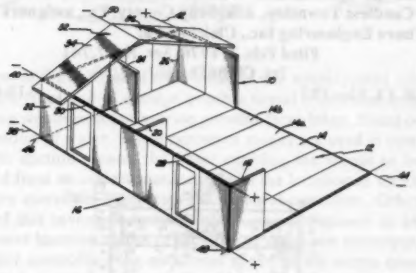


3,707,062

FIELD APPLICATION OF THERMOSETTING RESIN

Fleetwood B. Joiner, Jr., 703 North Bayfront, Balboa Island, Calif.

Filed Feb. 2, 1970, Ser. No. 7,954
Int. Cl. E04b *1/58, 1/60*
U.S. Cl. 52—741 **2 Claims**



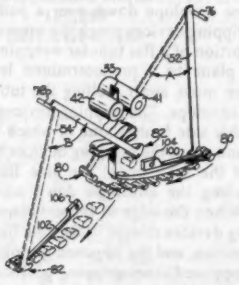
A method for on-site building construction using thermosetting resin and means for electrically setting the resin substantially instantaneously to provide structurally sound joints is disclosed. The method permits the use of thermosetting resins under adverse conditions of temperature and environment.

3,707,063

APPARATUS FOR PACKAGING RIBBON-LIKE MATERIAL

Newman McIntyre, Shelby, N.C., assignor to Christie Manufacturing Company, Shelby, N.C.

Filed March 17, 1971, Ser. No. 125,134
Int. Cl. B65b *3/04*
U.S. Cl. 53—116 **16 Claims**



An apparatus for packaging a ribbon-like material, such as elastic webbing, in a rectangular open top container. The ap-

paratus includes means for feeding the material along a downward path of travel, means for alternately engaging opposite faces of the material to impart a zig-zag movement thereto and to guidingly position the same in overlapping runs in the container, and means for reciprocating the container to form overlying layers each comprising overlapping zig-zag runs. A pair of hold down arms are positioned adjacent the sides of the container to apply a holding force on the material and thereby preclude voids along the container sides caused by movement of the material toward the center of the container.

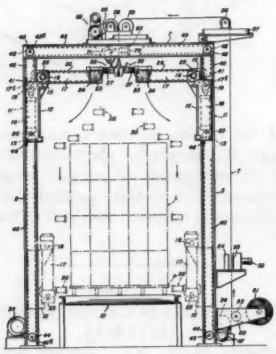
ERRATUM

For Class 53—40 see:
Patent No. 3,707,274

3,707,064
APPARATUS FOR SHRINK-WRAPPING

John R. Mucka, and William H. Dickinson, both of McCandless Township, Allegheny County, Pa., assignors to Auburn Engineering Inc., Clairton, Pa.

Filed Feb. 2, 1970, Ser. No. 7,741
Int. Cl. B65b *1/02, 43/30*
U.S. Cl. 53—183 **18 Claims**



There is disclosed apparatus for pulling a tubular shrinkable polyethylene envelope down over a palletized load wherein opposed gripping devices pinch the opposite faces of the leading edge portion of a flat tubular wrapping that is fed down in a vertical plane to a predetermined level. These gripping devices then move apart, pulling the tubular sheet open to a four-sided envelope. The gripping devices are carried on vertically movable side frames, one of which is at each side of the machine, and when the gripping devices have spread the leading end of the tube open, the side frames move down in unison, pulling the envelope down around the load to be wrapped. When the edge of the envelope is below the pallet, the gripping devices release it, the side frames are raised to the starting position, and the opposed gripping devices are moved back into opposed sheet-gripping position for the next operation. Each required length of tubular wrapper may be transversely heat-sealed, and each length is severed by a cut-off just rearwardly of the heat seal so that the sealed end of the plastic envelope is centered over the top of the load.

3,707,065
PROCESS FOR THE PURIFICATION OF PYROLYTIC GAS MIXTURES

Hans Joachim Muller, Leverkusen, and Horst Bruckner, Dormagen, both of Germany, assignors to Erdolchemie Gesellschaft mit beschrankter Haftung, Cologne, Germany

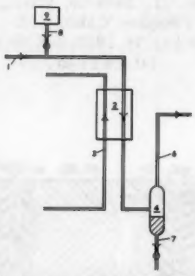
Filed Aug. 17, 1971, Ser. No. 172,575
Claims priority, application Germany, Aug. 21, 1970, P 20 41 549.0
Int. Cl. B01d *53/14*
U.S. Cl. 55—32 **4 Claims**

Steam, diene hydrocarbons, styrene and methylstyrenes are removed from crude gas by scrubbing the gas with a regeneratable glycol extractant and thereafter removing polymerizable hydrocarbons and/or polymers dissolved in the glycol by a liquid-liquid extraction.

3,707,066
GAS PURIFICATION

Michael Carne, London; Kenneth Cecil Smith, Roydon, and David Arthur Webber, Bishop's Stortford, all of England, assignors to The British Oxygen Company Limited, London, England

Filed July 16, 1970, Ser. No. 55,400
Claims priority, application Great Britain, July 16, 1969, 35894
Int. Cl. B01d *5/00*
U.S. Cl. 55—88 **6 Claims**

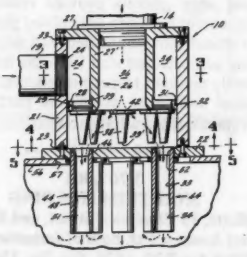


A method for reducing the level of impurities in a gaseous feedstock by mixing a solvent gas with the feedstock, cooling to a temperature at which a portion of the gas mixture condenses to give an impurity-rich liquid and separating the liquid from the uncondensed portion.

3,707,067
GAS SCRUBBING DEVICE

Gerald P. Dietrick, 523 Ridgeview Drive, Florence, Ky.

Filed July 13, 1970, Ser. No. 54,323
Int. Cl. B01d *47/06*
U.S. Cl. 55—228 **9 Claims**



A gas scrubber including a plurality of jet pumps arranged around a central conduit through which particle carrying gas is directed. The gas is drawn through tubular mixing chambers which receive liquid from the jet pumps. From the mixing

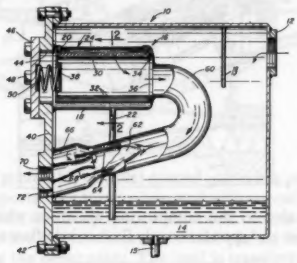
chambers, a mixture of gas and liquid is projected into a tank where the scrubbed gas is separated from the liquid. An appropriate filter or the like separates the particles from the liquid.

3,707,068

MULTISTAGE LIQUID AND GAS SEPARATOR

Carl Bloom, Springfied, Mass., assignor to Worthington Corporation, Holyoke, Mass.

Filed Feb. 25, 1970, Ser. No. 13,872
Int. Cl. B01d *45/12*
U.S. Cl. 55—337 **9 Claims**



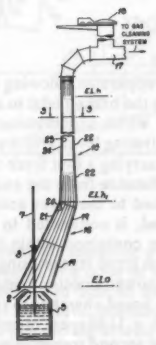
A liquid and gas separator having a primary stage including an agglomerator cartridge and a secondary stage providing the discharge path for the gas and liquid mixture passing from the primary state. The secondary stage includes a centrifugal separator with a flow reversing path and a combined minimum pressure discharge nozzle and collector chamber through which the separated gas and liquid are individually removed from the separator.

3,707,069

GAS COLLECTOR FOR STEEL FURNACE

Daniel E. Pike, Harrington Park, N.J., assignor to Air Pollution Industries, Inc., Englewood, N.J.

Filed Oct. 13, 1970, Ser. No. 80,332
Int. Cl. B01d *51/00*
U.S. Cl. 55—418 **5 Claims**



Water-cooled, panel-constructed tapered hood over mouth of steel furnace leads to water-cooled, panel-constructed stack having approximately parabolic vertical cross-section to increase velocity and velocity pressure of off-gas and to reduce static pressure of off-gas and maintain such static pressure at a negative value throughout stack. Off-gas will not lead out between panel joints. Same effect may be achieved by inserting orifice plate in bottom of conventional stack. Inner wall of hood and stack lined with ceramic to reduce cooling water requirement, only enough cooling water being required to prevent ceramic from melting, cooling of off-gases more economically being handled in gas cleaning system.

ERRATUM

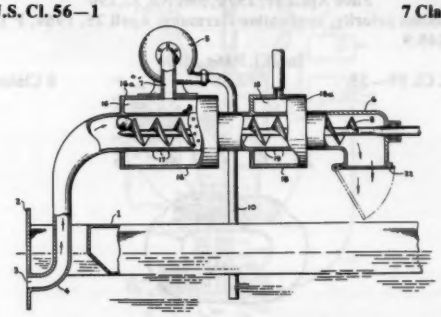
For Class 55—483 see:
Patent No. 3,707,046

3,707,070

METHOD OF PROCESSING WEEDS

Merle P. Chaplin, 609 Driver Avenue, Winter Park, Fla.

Division of Ser. No. 875,297, Nov. 10, 1969. This application Nov. 5, 1971, Ser. No. 196,242
Int. Cl. A01d
U.S. Cl. 56—1 **7 Claims**



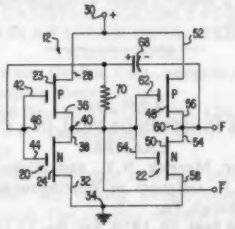
A new and improved device suitable for employment adjacent the front end of a barge or other vessel concerned with removing weeds or other marine growths from lakes, rivers or other bodies of water. Screw conveyor means are used in concert with suction means, the latter enabling the weeds to be removed from an underwater location to the location at which the screw conveyor completes the removal operation. Other facets of this invention include cutoff means disposed at an underwater location ahead of the inlet to the screw conveyor, means for controlling the rotational speed of the screw conveyor, and a novel piping arrangement whereby suction or pressure may be selectively applied to certain chambers disposed along the length of the tubular structure associated with the screw conveyor. These piping arrangements also make it possible for certain cleaning operations to be carried out on occasion, so as to backwash the weeds from certain of the chambers, and for other purposes later described.

3,707,071

SOLID STATE TIMEPIECE

Richard S. Walton, Lancaster, Pa., assignor to Hamilton Watch Company, Lancaster, Pa.

Continuation-in-part of Ser. No. 70,787, Sept. 9, 1970, Pat. No. 3,664,118, which is a continuation-in-part of Ser. No. 768,076, Oct. 16, 1968, Pat. No. 3,560,998, and a continuation-in-part of Ser. No. 818,228, April 22, 1969, Pat. No. 3,576,099. This application March 12, 1971, Ser. No. 123,550
Int. Cl. G04c *3/00*
U.S. Cl. 58—50 R **15 Claims**



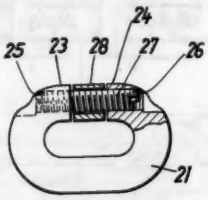
Disclosed is a wristwatch comprising a crystal oscillator, a frequency divider formed of complementary MOS transistors,

a display actuator, and a time display. The watch may be all solid state with integrated circuit construction and include a digital time display of light-emitting diodes. It includes display interrogation on demand and display scanning or strobing as well as time setting.

3,707,072
CHAIN LOCK

Horst Elsasser, Hauffstrasse 15, 7084 Unterkochen/Wurttemberg, Germany

Filed April 27, 1970, Ser. No. 32,196
Claims priority, application Germany, April 25, 1969, P 19 22 149.9
Int. Cl. F16g *15/04*
U.S. Cl. 59—35 **8 Claims**

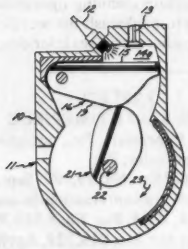


A chain lock including a lock element consisting of an open chain link, wherein the opening thereof defines an entry slot whereby adjacent lengths of chain may be joined together. The portions adjacent the entry slot are provided with two axially aligned bores for receiving a rod-like connecting element which closes the entry slot.

3,707,073
ROTARY PISTON ENGINE

Robert J. Bernstein, 11881 Steele Drive, Garden Grove, Calif.

Filed Sept. 4, 1970, Ser. No. 69,533
Int. Cl. F02b *75/32, 23/04*
U.S. Cl. 60—15 **1 Claim**



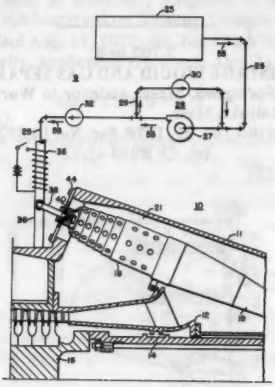
This disclosure relates to an internal combustion engine that uses a rotary piston for overcoming the disadvantages of currently available engines. The disclosed engine is simple, and may be used in a multi-cylinder arrangement for increased power production.

3,707,074
SPONTANEOUS IGNITION OF FUEL IN A COMBUSTION CHAMBER

Mitchell I. Meyer, Merrick, N.Y., and Michael J. Ambrose, Woodbury, N.J., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Sept. 30, 1970, Ser. No. 77,116
Int. Cl. F02c *3/24*
U.S. Cl. 60—39.14 **1 Claim**

An arrangement and method to heat fuel under constant volume to a temperature at which it will flash at the ambient pressure in the combustion chamber and then admit the fuel

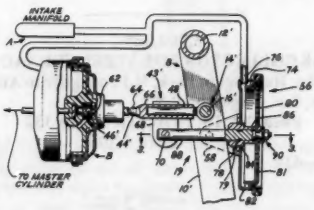


through a valve to the combustion chamber where the fuel mixes with air and spontaneously flashes into flame.

3,707,075
DUAL LEVER RATIO BRAKE ACTIVATING APPARATUS

Maxwell L. Cripe, South Bend, Ind., assignor to The Bendix Corporation

Division of Ser. No. 23,533, March 30, 1970, Pat. No. 3,633,366. This application May 17, 1971, Ser. No. 144,034
Int. Cl. F15b *7/00, 13/10*; G05g *1/04*
U.S. Cl. 60—54.6 P **4 Claims**



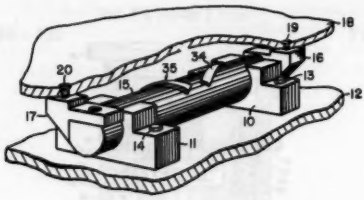
A brake activating apparatus, allowing a dual lever ratio for applying a force from the brake pedal to a valve operating rod of a power booster which communicates with the master cylinder. A brake activating lever arm is pivotally secured to a vehicle. A pivot pin carrying a first force transmitting member is located at a fixed distance from the end of the lever arm. A yoke member, attached to the lever arm at a different fixed distance from the end, is connected to a vacuum chamber housing. A diaphragm contained within the vacuum chamber is secured to a second force transmitting member. The valve operating rod for a power booster communicating with the master cylinder has a bored chamber to receive the first transmitting member and a U-shaped member surrounding the chamber to secure the second transmitting member. When the brake lever is moved, the applied force is transmitted through the yoke and second transmitting member as long as the pressure differential retains the diaphragm member in a fixed position. If the diaphragm member is free to move, the first transmitting member contacts the end of the bored chamber and transfers the applied force from the lever arm, at a different ratio, to the valve operating rod communicating with the master cylinder. In another embodiment, the second force transmitting member carries the applied force until the force required to move the valve operating rod is greater than a resilient member whereupon the resilient member collapses permitting the applied force to be transmitted through the first force transmitting member.

3,707,076

LOAD-REGISTRY DEVICE

Keith W. Jones, Houghton, Mich., assignor to Northern Technical Services, Inc., Laurium, Mich.

Filed May 4, 1970, Ser. No. 34,260
Int. Cl. G01l 1/00, 3/10
U.S. Cl. 73—141 A 2 Claims



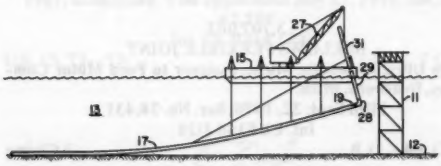
A pair of preferably parallel spaced plates are provided with bearing supports for a torsion bar, and with oppositely-extending crank arms at axially spaced points on the bar. Preferably, the bearings are mounted on one of the plates, and the crank arms engage the other plate. The load is transferred from one plate to the other in such a manner as to generate torsion in the bar, the amount of which is read out by a conventional strain gauge system.

3,707,077

METHOD FOR INSTALLATION OF A RISER ON AN OFFSHORE STRUCTURE

Norman E. Garner, Houston, Tex., assignor to Esso Production Research Company

Filed Nov. 1, 1971, Ser. No. 194,147
Int. Cl. F16l 1/00; E21b 15/02
U.S. Cl. 61—72.3 11 Claims



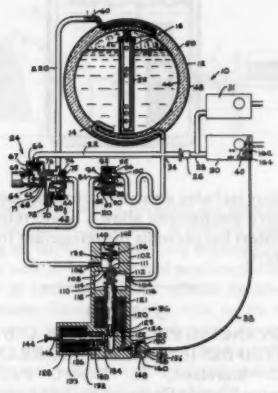
A method is disclosed for installing a pipeline riser on an offshore structure situated in a body of water. The technique includes laying a pipeline on bottom having a free end adjacent the base of the structure, positioning a floating vessel over the pipeline, and connecting at least one tension member between the vessel and the pipeline. The free end of the pipeline is raised to a point adjacent the water surface by applying force to the pipeline through each said tension member having a magnitude and direction such that the sum of the vertical force components is sufficient to lift the free end of the pipeline and the sum of the axial components is sufficient to prevent bending stress in the unsupported suspended section from exceeding the allowable stress. A riser bend section is attached to the free end of the pipeline and the pipeline lowered to the bottom as additional sections of the riser are attached. Simultaneously, sufficient axial tension is maintained on the pipeline to prevent the suspended section from being overstressed.

3,707,078

FAIL-SAFE LIQUID OXYGEN TO GASEOUS OXYGEN CONVERSION SYSTEM

Robert L. Cramer, Davenport, Iowa, assignor to The Bendix Corporation

Filed Feb. 10, 1971, Ser. No. 114,313
Int. Cl. F17c 7/02
U.S. Cl. 62—50 9 Claims



A fail-safe system for supplying oxygen to a breathing regulator operated upon demand by a recipient. A liquid oxygen storage vessel has an outlet port connected to its inlet port through a build-up circuit. As the liquid oxygen flows through the build-up circuit it is converted from a liquid to a gas through the effect of thermal energy. As a result of the liquid to gas conversion, a high internal pressure is created in the build-up circuit. A pressure responsive member placed in the build-up circuit will interrupt the flow when the pressure reaches a predetermined value during the active operation of the system. A supply circuit connected to the build-up circuit transmits the oxygen as a gas to operate the breathing regulator. A first solenoid in response to an electrical signal controls a flow control valve connected in the build-up circuit. An operational switch on the panel regulator supplies the electrical signal to the first solenoid, opening the control valve. As the valve opens, a latching shaft controlled by a second solenoid engages a notch on the plunger of the flow control valve to hold the valve open. The flow control valve will remain open until an operational closing signal is communicated to the second solenoid. Upon receiving the signal, the second solenoid moves the latching shaft away from the notch permitting a resilient member to close the fluid flow outlet port to the build-up circuit. To prevent excessive pressure in the build-up circuit when the first solenoid closes the flow control valve, a by-pass valve is utilized to provide an escape to the atmosphere.

3,707,079

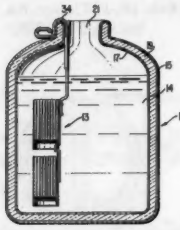
DOUBLE CANISTER ASSEMBLY FOR STORING SAMPLES IN A VACUUM INSULATED STORAGE CONTAINER

Herbert W. Hawker, Golden, Colo., assignor to Cryogenic Engineering Company, Denver, Colo.

Filed Dec. 26, 1972, Ser. No. 120,181
Int. Cl. F25d 17/00
U.S. Cl. 62—189 7 Claims

A vacuum insulated storage container including a canister assembly suitable for storing semen containing ampules therein is disclosed. The canister assembly comprises a rigid elongated handle having a low thermal conductive section that separates upper and lower portions. The upper portion is designed to fit over the neck of a vacuum insulated storage

container. The lower section supports two canisters in vertical alignment. The upper canister is removably attached to the handle and the lower canister is fixedly attached thereto. Each



of the canisters includes a valve mechanism located at its bottom. The valve mechanisms allow a liquid refrigerant to flow into the canisters but prevents the refrigerant from flowing out of the canisters.

3,707,080

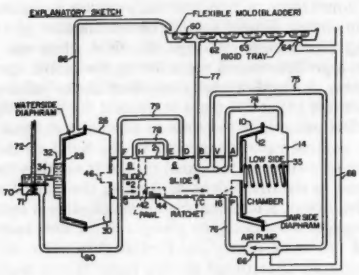
SELF-ADVANCING PROGRAMMER AND PRESSURE ACTUATED DEVICES CONTROL ARRANGEMENT

William C. Moreland, II, Export, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Division of Ser. No. 874,598, Nov. 6, 1969, Pat. No. 3,648,732. This application Aug. 18, 1971, Ser. No. 172,852

Int. Cl. F25c *1/00*

U.S. Cl. 62—233 **4 Claims**



A control arrangement in which pressure actuated devices are selectively actuated from a self-advancing programmer provided with higher pressure areas (typically pressure) and lower pressure areas (typically suction) selectively placed in registry with ports in communication with the pressure actuated devices. The pressure and suction areas are positionable in accordance with the position of a displaceable member separating a low pressure side space and a high pressure side space which are in normal communication with the suction areas and pressure areas, respectively. Provision is made for selectively venting, and preventing venting, of the pressure areas and suction areas in accordance with the character of the pressure condition (e.g., pressure or alternatively vacuum) to be applied to a particular device. With this arrangement shifting of the character of the pressure condition on the displaceable member takes place to correspond to the pressure condition to be applied to the particular device and the advance of the programmer occurs in accordance with the attainment of the pressure condition applied to the device. The arrangement of the invention is particularly adapted in one embodiment to control a flexible mold or bladder type ice maker and the supply of water thereto.

3,707,081

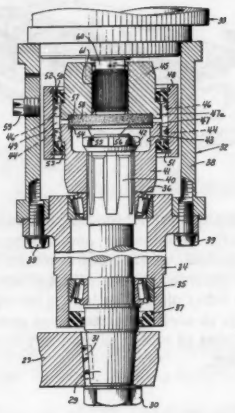
GEAR TYPE COUPLING

James W. Brazell, Atlanta, Ga., assignor to Heath International, Inc., Richmond, Mich.

Filed Feb. 16, 1971, Ser. No. 115,410

Int. Cl. F16d *3/18*

U.S. Cl. 64—9 R **1 Claim**



A gear type flexible coupling which includes a pair of coupling members connected by a splined sleeve and wherein the coupling members are retained in a spaced apart arrangement by a cushion member.

3,707,082

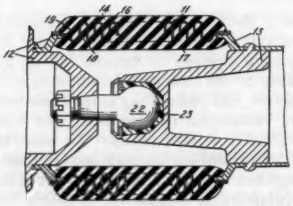
BELLOWS FLEXIBLE JOINT

George Ulics, Plymouth, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Sept. 22, 1970, Ser. No. 74,431

Int. Cl. F16d *3/28*

U.S. Cl. 64—11 B **3 Claims**



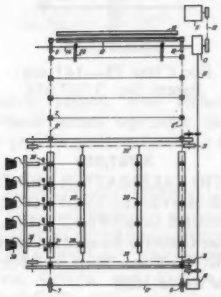
A flexible joint for transferring torque including a metal bellows member interconnecting a pair of rotatable end members. The radii of curvature of the axially extreme convolutions adjacent each of the end members are enlarged in magnitude relative to the radii of the middle convolution or convolutions.

3,707,083

APPARATUS FOR SUPPLYING WEFT THREADS TO A WARP KNITTING MACHINE

Vladimir Svoboda, and Andrej Vajda, both of Brno, Czechoslovakia, assignors to Elitex, Zavody Textilniho Strojirenstvi, Generalni Reditelstv, Liberec, Czechoslovakia

Division of Ser. No. 818,205, April 21, 1969, Pat. No. 3,603,117. This application Oct. 1, 1970, Ser. No. 77,265
Claims priority, application Czechoslovakia, April 22, 1968, 2951/68
Int. Cl. D04b *27/10*
U.S. Cl. 66—125 7 Claims



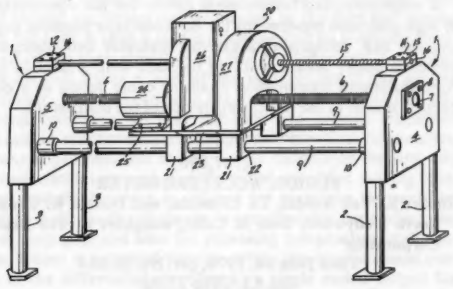
A plurality of weft threads is simultaneously supplied to a conveyor which continuously and successively transports the weft threads to a warp knitting machine which forms chain stitches of first warps for holding the weft threads.

3,707,084

APPARATUS FOR FORMING CORRUGATED TUBING

Joseph Winter, New Haven, Conn., assignor to Olin Corporation

Division of Ser. No. 840,564, March 25, 1969, Pat. No. 3,614,884, which is a division of Ser. No. 679,459, Oct. 31, 1967, abandoned. This application July 17, 1970, Ser. No. 62,768
Int. Cl. B21d *13/04*
U.S. Cl. 72—77 7 Claims



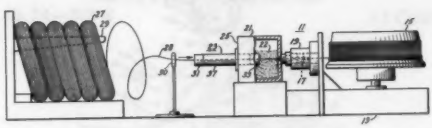
The disclosure teaches an improved apparatus for corrugating tubes and an improved corrugated tube produced thereby. The apparatus is characterized by having an inner frame moveably mounted on an outer frame, with a die rotatably mounted on the inner frame. The die has an annular opening through which passes the tube to be corrugated and shaped die members projecting into the annular opening.

3,707,085

GUIDE FOR WIRE DRAWING

John D. Copenhaver, Baltimore, Md., assignor to Bethlehem Steel Corporation

Filed Oct. 15, 1970, Ser. No. 80,847
Int. Cl. B21c *1/30*; B21d *43/16*
U.S. Cl. 72—291 9 Claims



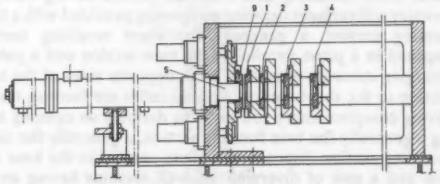
A wire drawing guide which prevents the production of out of round and inconstant gage wire is formed from a tubular member having an inside diameter only slightly larger than the diameter of the wire to be drawn and nonfunctioning reducing dies positioned at each end of said tubular member and substantially the same diameter as the wire to be drawn. The guide is positioned in line with the drawing die to direct the wire to be drawn straight into the drawing die and must be at least 15 to 16 inches in length to provide adequate straightening of the wire prior to its entrance into the die.

3,707,086

DEEP-DRAWING PRESS

Gunter Rudolf Berg, Hopfengarten 2, 33 Braunschweig, Germany

Filed Dec. 10, 1970, Ser. No. 96,922
Claims priority, application Germany, Dec. 10, 1970, P 19 61 892.9
Int. Cl. B21d *22/28*
U.S. Cl. 72—349 3 Claims



The invention relates to a deep-drawing press with a multistage die set comprising a plurality of dies arranged in sequence and punches moving telescopically inside each other, each of which, after a given length of travel, remains at an associated die which serves as a hold-down ring; the punches are powered by a plurality of coaxial annular pistons.

3,707,087

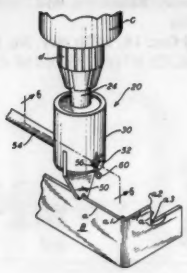
DEBURRING DEVICES

Hildaur L. Neilsen, 2 Juniper Street, Metuchen, N.J.

Filed June 16, 1971, Ser. No. 153,768
Int. Cl. B21j *7/02*
U.S. Cl. 72—429 16 Claims

Angularly disposed jaws of a forcefully vibrated peening

tool peen a metal edge or edges to be deburred, thereby smoothing said edges. The peening tool is vibrated by motion



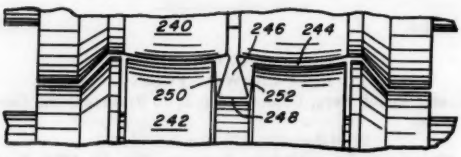
derived from teeth, or indentations, or equivalent irregular surfaces of a rapidly rotated hammer.

3,707,088

FORMING HOLLOW RIBS IN METAL SHEET

Richard E. King, Pittsburgh, and Richard C. Pfaff, Murrysville, both of Pa., assignors to Epic Metals Corporation, Rankin, Pa.

Filed May 3, 1971, Ser. No. 139,404
Int. Cl. B21d *5/08*
U.S. Cl. 72—178 **18 Claims**



Apparatus for forming generally triangular hollow ribs in a metal sheet including first roller die means having complementary roll surfaces defining an opening provided with a base forming section, a generally flat sheet receiving section disposed in a plane parallel to the base section and a pair of diverging sidewalls extending from opposite sides of the base section to the sheet section. Second roller die forming means having complementary roll surfaces defining an opening having a generally flat base forming section, a generally flat sheet receiving section disposed in a plane parallel to the base section and a pair of diverging sidewall sections having an included angle of less than the first die means diverging sidewall sections but greater than zero. Third roller die means having a pair of work surfaces adapted to engage the outer surfaces of the upper portions of the sidewalls of the sheet and urge the same transversely inwardly to establish a gap between the upper surfaces which is less than the transverse width of the base. Non-rotating fourth die means disposed generally transversely inwardly with respect to the third roller die means and adapted to be in supporting contact with the lower inner surfaces of the rib sidewalls and the rib base as the sheet passes through the third roller die means.

A sheet forming die for supporting the interior of a generally triangular hollow rib during formation thereof having a pair of sheet engaging feet. Each sheet engaging foot having a lower surface for engaging the inner surface of the rib base and a side surface for engaging the inner lower surface of one rib sidewall. The base and sidewall engaging surface of each foot at an angle of less than 90°.

A method of forming generally triangular hollow ribs in a metal sheet. Forming the sheet by horizontally disposed roller die means to establish a generally flat rib base sector disposed in a plane generally parallel to the plane of the sheet. Simultaneously forming a pair of angularly directed rib sidewalls disposed on opposite sides of the rib base sector and connecting the base sector with the remainder of the sheet. The sidewalls diverging outwardly from the base to the sheet. Subsequently, progressively roller die forming the sheet without materially altering the width of the base sector or the sidewalls by reducing the included angle between the sidewalls and increasing the distance between the plane of the sheet and plane of the rib base sector. Subsequently transversely reducing the distance between the upper portions of the sidewalls until the distance between them is less than the width of the base, while providing supporting die means in contact with the interior surface of the base sector and the interior surface of the lower portions of the sidewalls.

ERRATUM

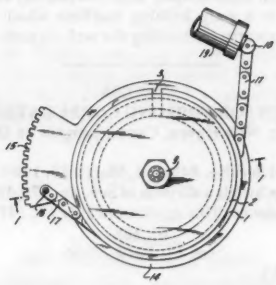
For Class 73—141 see:
Patent No. 3,707,076

3,707,089

CONSTANT RATIO CALIBRATION AND TRANSMISSION DEVICE FOR MOVEMENTS OF BOURDON TYPE PRESSURE GAGES AND THE LIKE

Giuseppe Stradella; Umberto Stradella, both of Via Roma 13; Giuliano Daniele, Via Roma 144D, and Fernando Gatti, Via Cavour 37, all of Recco, Italy

Filed Dec. 3, 1970, Ser. No. 94,932
Claims priority, application Italy, Dec. 6, 1970, 7497 A/70
Int. Cl. G01l *7/04*
U.S. Cl. 73—418 **5 Claims**



A calibration and transmission device for the construction of high-precision movements for Bourdon type pressure gages and the like, comprising a variable-diameter and constantly centered pulley means working together with a flexible and constant-length transmission chain or cable acting as a connection means to the indicating device of the instrument.

3,707,090

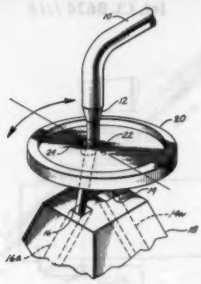
FLUIDIC ACCELEROMETER

Robert K. Van Ausdal, La Cresenta, and Donald R. Cooper, North Hollywood, both of Calif., assignors to The Bendix Corporation

Filed June 30, 1970, Ser. No. 51,084
Int. Cl. G01p *15/02*
U.S. Cl. 73—515 **8 Claims**

Angular and linear acceleration sensing and signal producing means are disclosed, both utilizing an inertial weight member suspended in a frame or housing on flexural pivots such that acceleration forces around the pivot axis cause a movement of the inertial member relative to the housing. A nozzle which is fixed with respect to the housing directs a control stream toward a pair of receiver ports which normally receive equal flows to result in equal pressure recovery. A

deflecting orifice is movable with the inertial weight member such that its edges deflect the greater part of the control stream flow into one or the other of the receiver ports to produce a pressure differential proportional to the magnitude



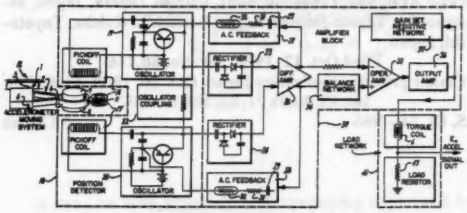
of the acceleration sensed. One embodiment includes mechanical feedback means operating through additional flexural pivots to provide position feedback from a controlled device.

3,707,091

DUAL PICK-OFF ELECTRONIC CIRCUITRY FOR LINEAR SERVO ACCELEROMETER

Harold D. Morris, Orinda, and Andrew B. Barlak, Jr., Berkeley, both of Calif., assignors to Systron Donner Corporation, Concard, Calif.

Filed June 18, 1970, Ser. No. 47,270
Int. Cl. G01p *15/08*
U.S. Cl. 73—517 **13 Claims**



Dual pick-off electronic circuitry for linear servo accelerometer of the type having an unbalanced mass in the form of a conducting element. First and second pick-off coils disposed on opposite sides of the conducting element. First and second oscillators are connected to the first and second pick-off coils in such a manner that the first pick-off coil forms a part of the tank circuit of the first oscillator and the second pick-off coil forms a part of the tank circuit of the second oscillator. Means is provided for interconnecting the first and second oscillators so that the first and second oscillators operate in synchronism at substantially identical frequencies. Means is provided for rectifying the outputs of the first and second oscillators and a differential amplifier having dual input and dual output is utilized for receiving the rectified signals. A.C. feedback means is provided for controlling the open loop gain and also for providing temperature stabilization. Means is provided for converting the double ended output of the differential amplifier to a single ended output for driving a torque coil which is connected to the conducting element to oppose the forces of acceleration on the conducting element.

ERRATUM

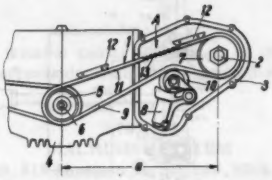
For Class 73—95 see:
Patent No. 3,707,119

3,707,092

DRIVE CHAIN FOR DRIVING SHAFTS ON WHEELS, ESPECIALLY FOR CAMSHAFT DRIVES OF INTERNAL COMBUSTION ENGINES

Ferdinand Piech, Stuttgart-Nord, Germany, assignor to Firma Dr. Ing., h.c. F. Porsche KG, Stuttgart-Zuffenhausen, Germany

Filed Feb. 9, 1971, Ser. No. 113,852
Claims priority, application Germany, Feb. 19, 1970, P 20 07 619.1
Int. Cl. F16g *13/02*; F01l *1/00*
U.S. Cl. 74—245 R **11 Claims**



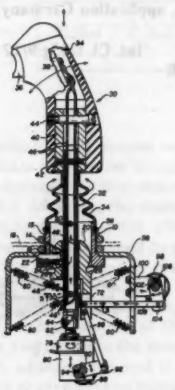
Drive chain for driving shafts and wheels which are arranged with axes parallel to each other in a housing consisting of light alloy material such as magnesium alloy. The drive chain is especially useful for driving camshafts of internal combustion engines and consists of individual, movably assembled members such as side straps and rollers supported on bolts which are connected with each other by the side straps. The side straps consist of a material which has a temperature-expansion coefficient at least nearly equal to that of the housing material.

3,707,093

MULTI-POWER CONTROL SYSTEM WITH SINGLE CONTROL STICK

Donald A. Worden, Pompton Plains, N.J., assignor to Marotta Scientific Controls, Inc., Boonton, N.J.

Filed Sept. 10, 1970, Ser. No. 71,072
Int. Cl. G05g *9/04*
U.S. Cl. 74—471 XY **14 Claims**



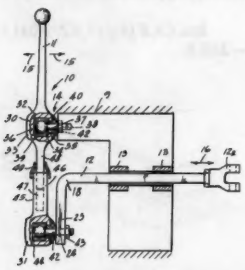
This multi-power control system has a group of three controllers for determining the supply of energy to different motor means, and all of the controllers are operated from a single center stick which has different motions for actuating different controllers; for example: sliding motion, rotary motion and rocking motion. Each motion operates a different potentiometer and does not affect the other potentiometers. A spring system restores the control stick to a neutral position. Movement from the neutral position in different directions reverses the effect of the control, and the intensity of the power supply is proportional to the force applied to the stick.

3,707,094

REMOTE SHIFT LEVER MECHANISM

Edward J. Herbenar, Detroit, and Sam Jenio, Sterling Hts., both of Mich., assignors to TRW Inc., Cleveland, Ohio

Filed Jan. 22, 1971, Ser. No. 108,849
Int. Cl. G05g 9/00
U.S. Cl. 74—473 R 5 Claims



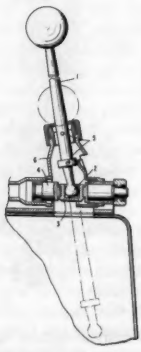
A shift lever having a first pivot point defined around a ball-ended stud joint with the stud fixed and the joint forming a portion of the lever, and a second pivot point at one end of the lever having a ball-ended stud joint with the stud affixed to an angled motion-transmitting arm and the joint socket formed in the end of the lever arm. Alternative constructions are illustrated to accommodate the differing radii between the movement of the lever arm around the first joint and the movement of the lever arm and motion-transmitting arm around the second joint.

3,707,095

SHIFTING LEVER FOR THE TRANSMISSION OF MOTOR VEHICLES

Rudolf Uhlenhaut, Stuttgart-Riedenberg; Egon Wieland, Stuttgart-Euerbach, and Uwe-Bernd Dittrich, Langmeil-Upper Palatiate, all of Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterlurkheim, Germany

Filed Jan. 27, 1971, Ser. No. 110,033
Claims priority, application Germany, Jan. 29, 1970, P 20 03 874.8
Int. Cl. G05g 9/12
U.S. Cl. 74—473 R 12 Claims



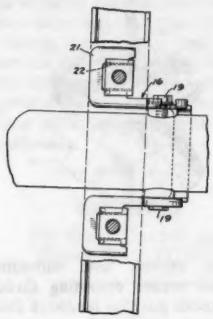
A shifting lever, particularly a center shifting lever, for transmissions of motor vehicles, which is so connected with the shifting linkages leading to the transmission and/or a relatively fixed vehicle part, that the connection releases under the influence of essentially axial pressure forces that are larger than the forces necessary for the shifting of the transmission, whereby the shifting lever, after release of this connection, is displaceable in the axial direction by slight pressure forces or by its own weight.

3,707,096

STEERING COLUMN CONSTRUCTION

Harry B. Bennett, 17225 Sherwood, Detroit, Mich.

Filed March 5, 1971, Ser. No. 121,293
Int. Cl. B62d 1/18
U.S. Cl. 74—492 7 Claims



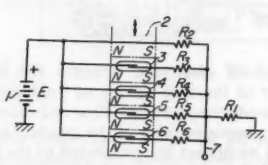
A steering column construction comprising a steering column having a column support bracket fixed thereto which has one or more open ended slots into which retainer brackets are slidably received. The retainer brackets are fixed on the vehicle. Portions of the retainer brackets are deformed into the column support bracket to provide a connection between the column support bracket and the retainer brackets which is releasable upon predetermined force on the steering column.

3,707,097

CONTROL FOR AUTOMATIC TRANSMISSION

Hiroshi Arai, and Takakazu Mori, both of Toyota, Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota-shi, Japan

Filed Oct. 12, 1970, Ser. No. 80,116
Claims priority, application Japan, Oct. 20, 1969, 44/83759
Int. Cl. B60k 21/00; H01h 36/02
U.S. Cl. 74—866 9 Claims



In an electrical control for an automatic transmission, including a throttle position signal generator and having vehicle speed as well as throttle position as input signals and an optimum selection of gear range as an output, the improvement wherein the throttle position signal generator comprises a magnet operatively connected to a throttle valve, a plurality of magnetically energized switches connected with a circuit including resistors and a source of electric energy for generating a stepped throttle position signal voltage.

3,707,098

TRANSFER TOOL

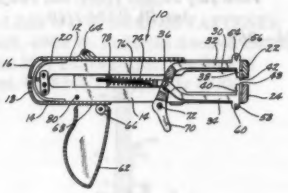
Charles R. Kern, Harvard, Mass.

Filed June 7, 1971, Ser. No. 150,471
Int. Cl. B41b 1/00; B41c 1/06
U.S. Cl. 81—9.2 3 Claims

A hand tool for use in presenting a smooth, self-lubricating, relatively friction-free surface to a workpiece to effect transfer

of material without damaging either the workpiece or the transfer medium. The tool comprises an elongated handle having connected at one end thereof an operating tip formed of polytetrafluoroethylene.

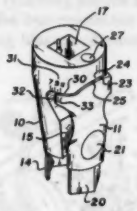
3,707,099
HEAD-ON WIRE STRIPPING TOOL
Edmund Petz, 3353 X Street, Omaha, Nebr.
Filed Oct. 15, 1970, Ser. No. 80,960
Int. Cl. H02g *1/12*
U.S. Cl. 81—9.5 A 3 Claims



A head-on wire stripping tool comprising upper and lower jaw members pivotally connected together at one end thereof and having a wire engaging clamp means at the other ends thereof which are normally spaced apart to define a wire receiving area therebetween. First and second stripping knives are longitudinally slidably mounted on the upper and lower jaw members respectively and are controlled by a trigger connected thereto which extends downwardly therefrom. A pistol grip type handle is pivotally secured to the upper jaw member and extends downwardly therefrom below the lower jaw member. Rearward actuation of the trigger to a first position, while grasping the handle, causes the clamp means to securely clamp the wire therebetween. Continued rearward actuation of the trigger to a second position causes the stripping knives to longitudinally move rearwardly with respect to the jaw members and clamp means to strip the insulation from the wire which is being held by the clamp means.

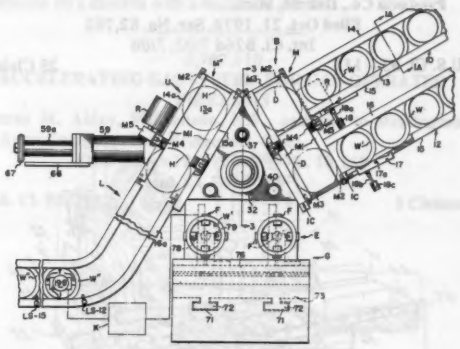
3,707,100
WRENCH
Victor N. Roberts, 649 Minoru Boulevard, Richmond, British Columbia, Canada
Filed March 16, 1970, Ser. No. 19,695
Int. Cl. B25b *13/16*
U.S. Cl. 81—175 2 Claims

An adjustable socket wrench comprising opposed jaws for gripping nuts and bolts, one jaw having a threaded male member fixed against axial and rotary movement and the other having a screw-threaded hole within which the male member is received so that rotation of one jaw about the axis



of the male member causes the spacing of the jaws to be changed to accommodate nuts and bolts of different sizes.

3,707,101
MACHINING SYSTEM
Carl H. Werth, 818 Thurman St., Saginaw, Mich.
Filed July 30, 1970, Ser. No. 59,443
Int. Cl. B23b *15/00*
U.S. Cl. 82—2.7 30 Claims

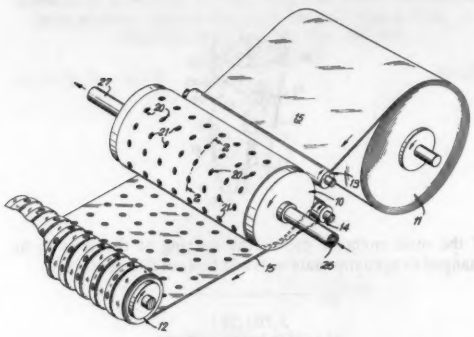


A system for machining ring-shaped workpieces including workpiece supply chute mechanism for consecutively supplying unmachined workpieces to a load station, an indexible carrier having chucks for delivering the unmachined workpieces from the load station to a work station, where the bores of the unmachined workpieces are machined by a controlled radially movable tool and for delivering the machined workpieces from the work station to a discharge station where the machined pieces are released. Measuring apparatus is provided for measuring the diameters of the newly machined bores and apparatus, responsive to the measuring apparatus, is provided for radially adjusting the tool if the diameters measured are not within a predetermined tolerance range.

3,707,102
FILM PERFORATING APPARATUS
George Alfred Huppenthal, Neenah, Wis., and Shlomo Peeri, Holon, Israel, assignors to American Can Company, New York, N.Y.
Filed July 21, 1970, Ser. No. 56,837
Int. Cl. B26f *3/08*
U.S. Cl. 83—171 8 Claims

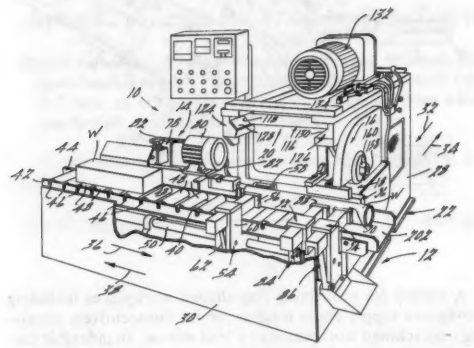
The perforating apparatus disclosed includes a perforating roll which has a plurality of apertures in the shape of the perforations to be made in the film. Heated needles are posi-

tioned in each of the apertures and the surface surrounding the apertures is cooled below the melting point of the film. A



pair of supplementary rolls position the film over the perforating roll so that the film is wrapped almost a full 360° as it is passed over the roll in the perforating process.

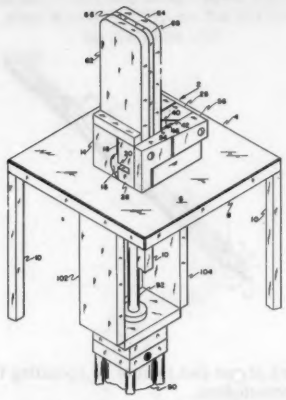
3,707,103
WORKSTOCK CUTTING APPARATUS
Paul Tishken, Birmingham, Mich., assignor to Tishken Products Co., Detroit, Mich.
Filed Oct. 21, 1970, Ser. No. 82,702
Int. Cl. B26d 7/02, 7/06
U.S. Cl. 83—113 **25 Claims**



A workstock cutting apparatus for cutting relatively large metal workpieces and comprising a base structure, means for supporting workstock on the base structure and for selectively transferring the workstock toward a rotary cutting element, a carriage assembly for reciprocating the rotary cutting element toward and away from the workstock, and means for clampingly securing the workstock in a preselected position in confronting relationship with respect to the cutting element during a cutting operation.

3,707,104
T-EDGE CUTTER
Ronald L. Congrove, Phoenix, Ariz., assignor to Royal Industries, Inc., Pasadena, Calif.
Filed Sept. 30, 1971, Ser. No. 185,031
Int. Cl. B26d 9/00, 5/12
U.S. Cl. 83—513 **6 Claims**

Apparatus for cutting and notching T-edging comprising male and female notching die members, pneumatic means for moving the male die member with respect to the female die members, an axially movable cutting blade for severing the T-



edging, an air cylinder for actuating the cutting blade, and guard means enclosing the cutting blade.

3,707,105
BANJO STRUCTURE
Patrick A. Teel, 410 Cedar Avenue, Minneapolis, Minn., and Lendrum A. MacEachron, 1963 West County Road E-2, Arden Hill, Minn.
Filed July 20, 1971, Ser. No. 164,265
Int. Cl. G10d 1/10
U.S. Cl. 84—269 **3 Claims**

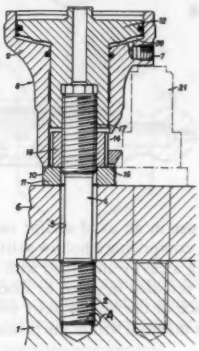
A banjo in which the drum head is stretched on and secured to a ring that can be separated from the remainder of the banjo with the drum head still secured to the ring.

3,707,106
Patent Not Issued For This Number

3,707,107
SCREW CONNECTION FOR HIGH LOADING
Hans Bieri, Todistrasse 9, 8330 Pfaffikon, Switzerland
Filed Jan. 25, 1971, Ser. No. 109,417
Claims priority, application Switzerland, Jan. 26, 1970, 1021
Int. Cl. F16b 33/04, 35/00
U.S. Cl. 85—1 T **10 Claims**

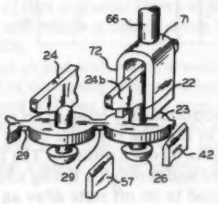
To interconnect structural units with a screw connection, for example with a bolt and nut, the threads of the bolt and nut are so selected that the pitch of the outer thread is smaller

than the pitch of the inner thread and, additionally, the axial play (a) between the inner thread (1) and the outer thread (2) is greater than the difference in pitch arising within the length of the interengaging threads; to fasten the bolt and nut



together, a pre-tensioning apparatus (8) is provided, which can be screwed on an extension of the bolt thread to axially pre-stress the bolt so that relative rotation of the holding nut and the bolt, under loading, can be avoided.

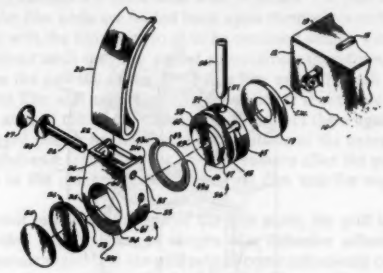
3,707,108
NAIL-LESS WING HEADED FASTENER
Richard W. Pabich, 4904 W. Fullerton Avenue, Chicago, Ill.
Filed May 18, 1970, Ser. No. 38,375
Int. Cl. F16b *19/00*; H01r *43/00*
U.S. Cl. 85—5 P **7 Claims**



Wing headed fasteners that require no nails to anchor them to a base. The fasteners are equipped to selectively retain a first article attached to a base. Tool attachments are provided which make it feasible to use automatic tools, such as air tools to removably anchor the fastener to bases.

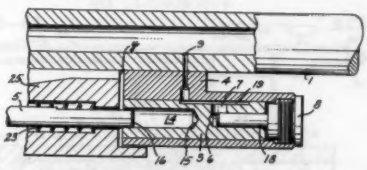
3,707,109
CAMERA STRAP RETRACTOR
August Bohanec, 44 N. Mantor Avenue, Pasadena, Calif.
Division of Ser. No. 171,265, Aug. 12, 1971. This application Feb. 14, 1972, Ser. No. 225,774
Int. Cl. G03b *17/56*
U.S. Cl. 95—86 **12 Claims**

An accessory for a camera includes a rigid strap connector having a collar portion and an end portion adapted to connect to an end of a flexible carrying strap. An adapter is rotatably disposed in the collar and held in substantially fixed axial relationship with it. An axial bore in the adapter mounts over an eye connector on the camera body. A transverse bore intersects the axial bore. A retaining pin fits through the transverse bore and the hole of the eye connector to secure the adapter to the camera. A spring bias mechanism urges the strap con-



nector to rotate relative to the adapter. Stop means prevents such relative rotation beyond a prefixed angular position. Preferably, an entry hole is provided in the strap connector so that the retaining pin can be pushed into the transverse bore. In this arrangement, the accessory can be pre-assembled and installed on a camera with a minimum effort.

3,707,110
ACCELERATING GAS SYSTEM FOR GAS-OPERATED FIREARMS
James M. Alday, Williamson, N.Y., assignor to Remington Arms Company, Inc., Bridgeport, Conn.
Filed March 10, 1970, Ser. No. 18,159
Int. Cl. F41d *5/08*
U.S. Cl. 89—193 **3 Claims**

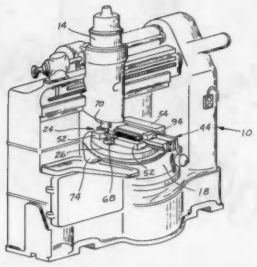


The invention pertains to a gas system for firearms which has a delayed accelerating feature controlling the action bar assembly. In gas operated extraction-ejection systems, considerable stress and shock is normally transmitted to the action bar assembly and its associated extraction-ejection apparatus. The stress is reduced in the present system by providing a gradual acceleration to the action bar assembly. The accelerating effect is accomplished by means of a novel piston-cylinder arrangement that provides an increase in velocity towards the end of the functioning cycle.

3,707,111
GEAR GENERATING FIXTURE FOR GEAR SHAPER
Edward J. Goscenski, Jr., Marshall, Mich., assignor to The Bendix Corporation
Filed June 16, 1971, Ser. No. 153,716
Int. Cl. B23f *9/06*
U.S. Cl. 90—8 **10 Claims**

A fixture for cutting gears mountable on a gear shaper comprising a housing formed with a longitudinal opening therein over which a gear cutting member slides in timed relationship to the shaper spindle on which the gear blank to be cut is car-

ried for cutting engagement with said cutting member. The housing is secured to the gear shaper apron which is connected to the relieving mechanism to thereby obtain synchronization of movement between the reciprocating action of the spindle and the to-and-fro action of the housing on which the cutting member is carried. The cutting member is



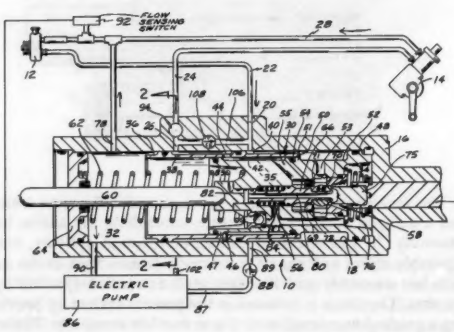
drivably connected to the gear shaper mandrel through the longitudinal opening by a cam and follower assembly. The cam and spindle are interconnected through the shaper gear box to establish a preselected ratio of rotation therebetween so that the cutting member slides linearly and tangentially in timed relationship to the rotation of the gear blank to be cut.

3,707,112

TELESCOPING PISTON MEANS FOR HYDRAULIC BRAKE BOOSTER

Jerome T. Ewald, South Bend, Ind., assignor to The Bendix Corporation

Filed Jan. 28, 1971, Ser. No. 110,568
Int. Cl. F15b 9/10, 13/04
U.S. Cl. 91—376 **5 Claims**



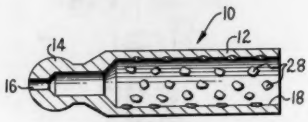
A vehicle fluid actuated brake booster device having a housing with a bore formed therein to reciprocally receive piston means, the movement of which is controlled by operator-operated valve means. The brake booster piston means is connected through a force transmitting rod to the piston of a conventional brake master cylinder assembly for applying the vehicle brakes. The brake booster piston is telescopically received in a sleeve, the latter of which is slidably arranged in the bore for movement together with said booster piston and relative thereto within said bore. The sleeve and piston are formed with circumferential, axially extending grooves or recesses which are in selective fluid communication with their associated inlet, outlet and working ports as determined by manipulation of said valve means.

3,707,113

PISTON FOR HYDRAULIC TRANSLATING UNIT

Allyn J. Hein, and Gilbert Tribley, both of Joliet, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

Filed Feb. 16, 1971, Ser. No. 115,639
Int. Cl. F16j 1/00
U.S. Cl. 92—248 **3 Claims**



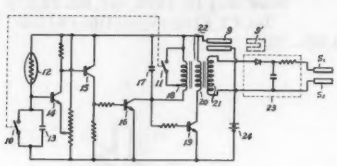
A piston for use in an axial and/or radial piston hydraulic translating unit, comprising a hollow skirt portion having inner surfaces defining a cavity and filled with a lightweight material, the material retained in place by discontinuous irregularities in the surface of the hollow skirt which mechanically interlock the filler material within the piston.

3,707,114

AUTOMATIC EXPOSURE CONTROLS FOR ELECTROSTATIC IMAGE CAMERAS

Mamoru Ogihara, Suwa-gun, Japan, assignor to Kabushiki Kaisha Yashika, Tokyo-to, Japan

Filed June 24, 1970, Ser. No. 49,423
Claims priority, application Japan, June 30, 1969, 44/62292
Int. Cl. G03b 7/08
U.S. Cl. 95—10 CT **5 Claims**



A camera for electrostatically imaging an object on film. A shutter is provided to start the exposure of the film only when the shutter is placed in its open position. The light intensity is automatically sensed and through a timing circuit an oscillating circuit is triggered to its off state after an elapse of time determined by the intensity of the light. Electrically conductive layers between which the film for receiving the electrostatic image is located are electrically connected with a transformer which becomes operative when the shutter opens and which is deenergized when the oscillating circuit is triggered by the timing circuit. This transformer has a portion which acts to release the shutter for return to its closed position when the transformer is deenergized.

3,707,115

METHOD FOR PRODUCING A THREE-DIMENSIONAL DIORAMA

Richard B. Rush, 170 Grandview, Glen Ellyn, Ill.

Filed Feb. 18, 1971, Ser. No. 116,474
Int. Cl. G03b 29/00
U.S. Cl. 95—12 **2 Claims**

A changeable exhibitor utilizing a three-dimensional reflective screen surface upon which is projected a series of photographic transparencies, each illustrating the same basic exhibit in full color but differing in details. The method employed in achieving the changeable exhibit includes utilizing the three-dimensional screen as the base for a number of full color,

three-dimensional models, each differing in detail, wherein each model is photographed from an indexed position. After all of the desired models are photographed, the base is

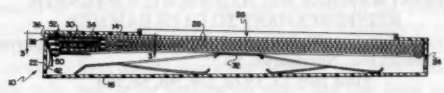
stripped of all removable details and the three-dimensional reflective surface becomes a screen upon which the photographic transparencies are projected in sequence to illustrate changes in full color of the same basic form or model.

3,707,116

FILM CARTRIDGE FOR PHOTOGRAPHIC CAMERAS AND METHOD OF ASSEMBLY

Nicholas Gold, Arlington, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed April 21, 1971, Ser. No. 136,030
Int. Cl. G03b *19/10*
U.S. Cl. 95—19 **7 Claims**



Afilmcartridge intended for use in certain photographic cameras of the "self-developing" type comprises a relatively flat, box-like casing containing in stacked relationship a spring platen, a stack of film units and a dark slide having an opaque curtain at one end which is folded down over an end of the stack of film units.

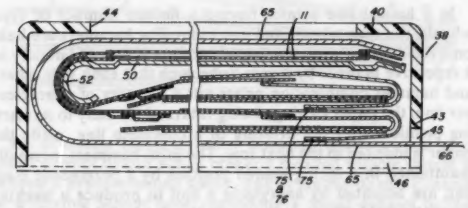
The casing has an end wall which is welded during assembly on an open end of the casing body after insertion of the casing contents. The end wall has a pair of projections adjacent the side edges thereof for displacing the side margins of the dark slide curtain away from the end wall joint to preclude attachment of the curtain to the casing during the welding operation.

3,707,117

PHOTOGRAPHIC FILM ASSEMBLAGE

Richard D. Moulton, Rochester, N.Y., and Stanley R. Schieven, deceased, late of Webster, N.Y. (by Arline E. Schieven, executrix), assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Feb. 11, 1971, Ser. No. 114,446
Int. Cl. G03b *19/10*
U.S. Cl. 95—19 **9 Claims**



A film pack for use in an in-camera processing system comprising a container in which a plurality of individual film units, each including a light-sensitive film and an image-receiving sheet coupled by means including a leader, a pull tab connected to said leader, are arranged in stacked relation so that after the film of each unit is exposed it can be moved into superposed relation with its corresponding image-receiving sheet for processing when the pull tab extending from the container, and camera it is associated with, is pulled. The pull tabs of all of the film units are folded back upon themselves and interleaved with the film units so as to be confined wholly within the container until they are pulled successively therefrom by pulling on the pull tab of the preceding film unit. The pull tab on the first film unit is adhered to a safety cover sheet which is wrapped around the stack of film units to protect them against being fogged during handling of a pack outside of the camera, and is withdrawn from the pack and the camera after the pack is placed in the camera to ready the first film unit for exposure.

To permit ready assemblage of the film units, the pull tabs are provided with patches or stripes of a cohesive adhesive material so arranged that the pull tabs become adhesively connected together, and the pull tab of the first film unit becomes adhesively connected to the safety cover sheet, with bonds having the necessary shear and peel strengths by the mere application of pressure to the stack of film units after the pull tabs have been folded back into interleaved relation with the film units.

ERRATUM

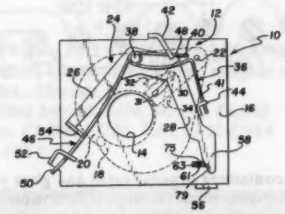
For Class 95—86 see:
Patent No. 3,707,109

3,707,118

SHUTTER MECHANISM

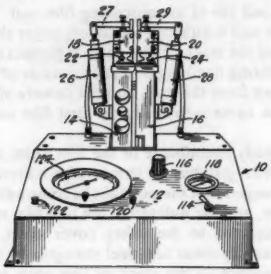
Jeffrey R. Stoneham, and Lawrence M. Wood, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Sept. 13, 1971, Ser. No. 179,708
Int. Cl. G03b *9/14*
U.S. Cl. 95—62 **4 Claims**



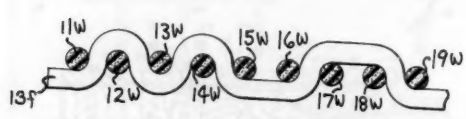
A shutter mechanism comprises a set of blades which are rotatable between open and closed positions relative to an exposure aperture wherein an actuating member is coupled to the shutter blades and actuatable by a driver means for moving the shutter blades to the open position. The actuating member is displaceable from a first to a second position wherein a first spring urges the actuating member towards the first position in response to displacement of the actuating to the second position. A second spring is disposed to be engaged by the actuating member as the actuating member moves to the second position. The second spring is displaced by the actuating member and acts in cooperation with the first spring to drive the shutter actuating member to the first position thereby closing the shutter blades at a preselected shutter speed.

3,707,119
APPARATUS FOR TESTING THE TENSILE STRENGTH OF SHEET MATERIAL
Wavell Frederick Cowan, 36 Parkside, Montreal, Quebec, Canada
Filed April 20, 1971, Ser. No. 135,733
Int. Cl. G01n 3/10
U.S. Cl. 73—95 8 Claims



The apparatus includes a pair of upstanding support members, each mounting clamps adapted to be in a position juxtaposed to each other, and the support members are mounted in pivotal relation one to the other. Hydraulic devices are provided for adjusting the clamping pressure on the sheet material to be tested, and a pneumatic device is provided for forcing the clamps away from each other to break the sheet material.

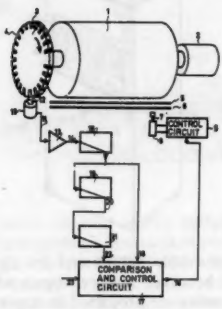
3,707,120
REINFORCEMENT OF RUBBER
Charles F. Schroeder, Toledo, Ohio, assignor to Owens-Corning Fiberglas Corporation
Continuation of Ser. No. 777,817, Nov. 21, 1968, abandoned.
This application June 1, 1971, Ser. No. 149,060
Int. Cl. D03d 11/00
U.S. Cl. 161—90 13 Claims



A fabric containing organic yarns and glass yarns so woven that the composite reinforcement is extensible, due to the inherent stretchability of the organic and due to the particular configuration in placement and orientation of the glass component, until the glass component is in line with the direction of tensile force, whereupon the glass yarns assume the load; the organic yarns having, in the meantime, become stretched to some point short of the elastic limit or to the ultimate elastic limit of the organic yarns.

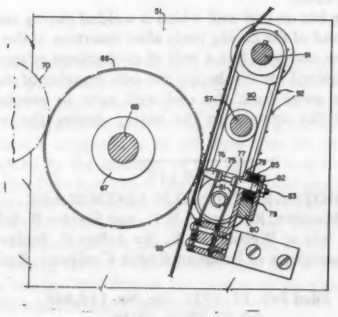
3,707,121
TIMING APPARATUS FOR HIGH SPEED PRINTER
Fabrizio Castoldi, Milan, Italy, assignor to General Electric Information Systems, Italia S.p.A., Caluso (Turin), Italy
Filed June 1, 1970, Ser. No. 42,438
Int. Cl. B41j 1/34
U.S. Cl. 101—93 C 7 Claims

A high speed printer wherein print characters are disposed in rows about the periphery of a rotating drum, wherein the particular character opposite a print line along the direction of rotation of the drum is denoted by the state of a counter which



is advanced as each character row passes the print line, and wherein the counter is reset when a predetermined point on the drum passes said print line.

3,707,122
PRINT HAMMER MECHANISM WITH MAGNETIC REINFORCEMENT TO CATH HAMMER
Norman Allen Cargill, Warminster, Pa., assignor to Peripheral Dynamics Inc., Norristown, Pa.
Filed July 13, 1970, Ser. No. 54,200
Int. Cl. B41j 9/36, 9/42
U.S. Cl. 101—93 C 4 Claims



In a helical line printer having a limited number of type wheels, the type wheels and corresponding hammers are held on a fixed frame while the paper carriage is moved laterally in a repetitive manner by a cam drive such that each type wheel and hammer combination prints out a plurality of characters per line, the paper carriage being returned laterally to its starting position after the printing of a complete line, while the paper is indexed to the next row. The print hammers, normally maintained in a spring loaded position by a permanent magnet, are actuated by energizing a coil to produce a bucking magnetic field which counteracts the field of the permanent magnet, and are caught and locked on rebound from the type wheel by the permanent magnet.

3,707,123

APPARATUS FOR DETECTING CHANGES IN THE THICKNESS OF AN INK FILM ON THE ROLLER SYSTEM OF A PRINTING PRESS

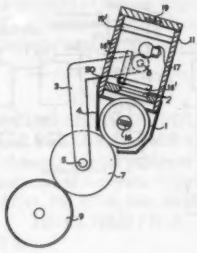
David Michael Heasman, Dorking Surrey, and Andrew Wallace Little, Whitton, both of England, assignors to The Research Association For the Paper and Board Printing and Packaging Industries, Surrey and Churchill Instrument Company Limited, Middlesex, England

Filed Nov. 5, 1970, Ser. No. 87,085

Claims priority, application Great Britain, Nov. 14, 1969, 55,892/69

Int. Cl. B41f *31/04*; H01j *39/12*

U.S. Cl. 101—207 16 Claims



Apparatus for detecting the thickness of an ink film on the roller of a printing press either to indicate the film thickness and/or to control one or more ink supplies to the roller. A monitoring head includes a housing for a transparent roller which, in use, contacts a printing press roller. The housing contains a light source positioned between two photoconductive cells, one in the transparent roller and one fixed in the housing. The photoconductive cells have a selective response. Either optical filters are positioned before the photoconductive cells or a monochromatic light source is employed. The photoconductive cells are included in a bridge circuit which has variable resistors for controlling its output and sensitivity. Accurate correlation is possible between ink film thickness and the output of the bridge circuit. Systems are disclosed using multiple monitoring heads and servo-controls for controlling ink supply to single color and multicolor presses.

3,707,124

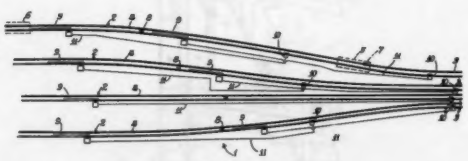
VEHICLE SPEED CONTROL DEVICE ACTUATING MECHANISM

William H. Peterson, Homewood, Ill., assignor to Pullman Incorporated, Chicago, Ill.

Filed Dec. 28, 1970, Ser. No. 101,927

Int. Cl. B61b *1/00*; B61l *3/12*

U.S. Cl. 104—26 R 20 Claims



An actuating mechanism for initiating the operation of a speed control device which brakes a railroad vehicle should it exceed a predetermined speed. The actuating device consists of a flexible sensor hose containing a liquid subject to the weight of the railroad vehicle to operate and to close a pressure contact in an electrical circuit to energize a ground mounted or railside mounted tripping mechanism in the form of an electromagnet in the railroad classification yard which, in turn, trips the vehicle-mounted speed control device on a railroad car passing over the electromagnet for slowing down the speed of the railroad car. The electromagnet will not be energized to the "on" condition until sufficient time has elapsed as determined by a timer in the electrical circuit of the electromagnet and thereby only "standing" cars rather than "passing" cars turn on the electromagnet. A modified form of the device utilizes two such sensor hoses and pressure switches in a common circuit whereby both pressure switches must be closed in order to energize the electromagnet, the spacing distance between the sensor hoses being greater than the distance between the fore and aft railroad car trucks and the length of each of the hoses or sensing units being greater than the distance between the trucks.

3,707,125

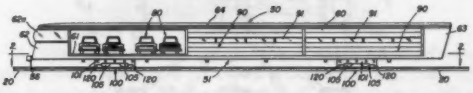
RAILWAY TRUCKS

Veljko Milenkovic, Boulder, Colo., and Glen L. Neidhardt, Deerfield, Ill., assignors to General American Transportation Corporation, Chicago, Ill.

Filed May 8, 1968, Ser. No. 727,502

Int. Cl. B61d *15/00*; B61f *9/00*, *13/00*

U.S. Cl. 105—179 7 Claims



There are disclosed several truck structures for supporting and guiding the body of a railway car on a wide gauge rail track formed of a pair of rails having a track gauge of at least about ten feet, each of the truck structures including a guide bogie carrying both a pair of tandem load wheels and front and rear sets of spring biased guide wheels, and a follower bogie carrying a pair of tandem load wheels, parallelogram linkages or the equivalent interconnecting the two bogies to coordinate the guiding movements thereof; springs are provided for urging the guide wheels into guiding relationship with the associated rail, and several systems are disclosed for providing spring connections between the bogies and the body of the associated railway car.

3,707,126

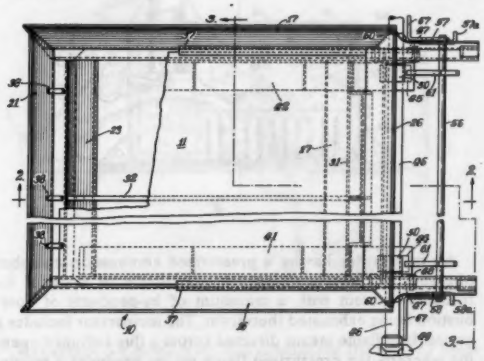
HOPPER GATE LATCHING MECHANISM

Francis M. Nester, Mechanicsburg, Pa., assignor to Keystone Industries, Inc., Chicago, Ill.

Filed July 13, 1970, Ser. No. 54,245

Int. Cl. B61d *7/20*, *7/26*; E05b *65/14*

U.S. Cl. 105—282 P 4 Claims



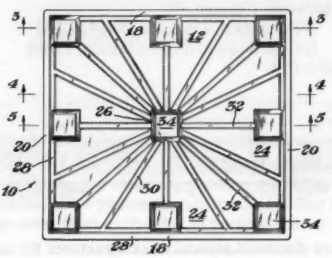
This disclosure deals with a lock mechanism for a discharge gate of a railway hopper car. The gate includes a frame

secured to the lower end of a hopper of the car and extending around the hopper opening, a door plate movably supported by the frame, and means for horizontally moving the door plate between a closed position where it closes the hopper opening and an open position where it uncovers the opening. A lock mechanism is provided for holding the door plate in its closed position. The lock mechanism is both manually engageable and self engageable. In the event the trainmen neglect to manually engage the lock mechanism, shifting of the door plate when the car is moved results in automatic or self engagement of the mechanism.

3,707,127
GOODS SUPPORTING PALLET

Albert J. Palfey, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Filed March 5, 1970, Ser. No. 16,726
Int. Cl. B65d *19/38*
U.S. Cl. 108—53 **1 Claim**

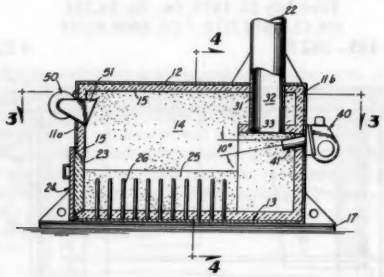


The present invention concerns novel goods-supporting pallets which possess good mechanical strength and can be easily transported. The pallets are also readily accessible on all sides to the tines of lifting devices. Additionally, the pallets nest easily into one another thereby saving storage space.

3,707,128
ANTI-POLLUTION SOLID WASTE BURNING INCINERATOR

Jerry M. Lang, Lindale, Tex., assignor to Care, Inc., Tyler, Tex.

Filed March 31, 1971, Ser. No. 129,911
Int. Cl. F23g *5/12*
U.S. Cl. 110—8 A **5 Claims**

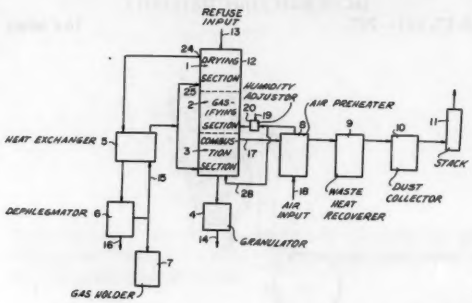


An incinerator having a pressurized combustion chamber operable to effect a maximum combustion of material introduced therein with a minimum of by-products of combustion being exhausted therefrom. The incinerator includes a pressurized flame means directed across a flue entrance opening whereby the pressurized flame means produces a restrictive air block of the flue opening thereby increasing pressure within the combustion chamber.

3,707,129
METHOD AND APPARATUS FOR DISPOSING OF REFUSE

Kensuke Kawashimo; Kazuo Tsukagoshi, and Tokio Itasaka, all of Tokyo, Japan, assignors to Ebara Infilco Kabushiki Kaisha, Tokyo-to, Japan

Filed Aug. 16, 1971, Ser. No. 171,820
Claims priority, application Japan, Aug. 18, 1970, 45/72197; Oct. 21, 1970, 45/92583; Feb. 16, 1971, 46/7001
Int. Cl. F23g *5/04*
U.S. Cl. 110—15 **10 Claims**

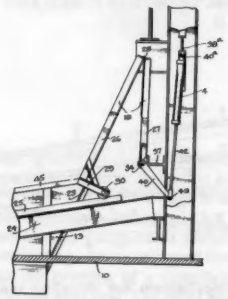


An apparatus for disposal of refuse consists of three sections arranged in vertical sequence and communicating by means of ports which permit refuse to pass from the top chamber to the bottom chamber. The refuse is dried in the top chamber, gasified in the middle chamber and burned in the bottom chamber. Exhaust gases from the bottom chamber, in part, pass upwardly through downwardly moving refuse to effect gasification in the middle chamber and drying in the top chamber. Exhaust gases from the top chamber are treated to remove noxious and corrosive components prior to recycling to the apparatus and to venting. The method and apparatus are suitable for use with mixed refuse containing among other components, glass, metal and garbage.

3,707,130
INCINERATOR CHARGING CUT-OFF GATE

Joel Russell Reiner, Philadelphia; William J. Preusch, Southampton, and William G. Davenport, Philadelphia, all of Pa., assignors to Beaumont Birch Company, Philadelphia, Pa.

Filed Oct. 8, 1970, Ser. No. 79,005
Int. Cl. E05f *11/00*
U.S. Cl. 110—173 R **8 Claims**



A wheeled closure gate for maintaining opened or closed as desired an aperture disposed in a substantially horizontal plane, the gate being shiftable along tracks embracing the aperture which are so relatively inclined with respect to the horizontal plane as to permit the same to be moved upwardly

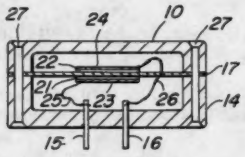
along said tracks by power means into aperture-closing position. The closure gate in this particular instance is of an articulated construction having a pair of hinged-together sections which are foldable upon themselves or "jack-knifed" as the gate is shifted into its open position by suitable power means and are unfolded into coplanar relation by gravity return of the gate into its closed position. When in its jack-knifed open position, the fore section of the gate is upwardly and rearwardly inclined as an extension of the back wall of an incinerator charging hopper with which the gate may be associated to deflect back into the hopper rubbish which would otherwise not be received by the hopper. The tracks for the wheeled gate are of a construction which largely prevents accumulation of debris thereon during charging of the hopper and thus are self-cleaning, the undesired accumulation of debris being further prevented by the aforesaid deflecting shields as well as by locating the tracks inboard of the top edges of the hopper side walls. The gate of the instant construction may be combined with the charging hopper as a unitary assembly thereof.

3,707,131

ELECTROACOUSTIC TRANSDUCERS OF THE BILAMINAR FLEXURAL VIBRATING TYPE

Frank Massa, Cohasset, Mass., assignor to Massa Division Dynamics Corporation of America, Hingham, Mass.

Filed Oct. 19, 1970, Ser. No. 81,842
Int. Cl. H04r *17/10*
U.S. Cl. 179—110 A **20 Claims**



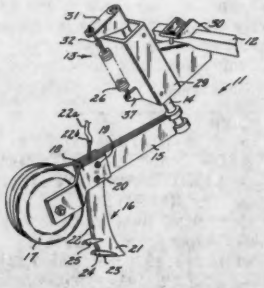
A sound opaque mask, contained within a spider-like frame structure, is assembled in accurate alignment with a piezoelectric transducer element. The mask is positioned so that only those portions of the vibrating bilaminar elements, which vibrate in phase, are exposed to the medium. The piezoelectric elements and the mating plate portions of the frame structure cooperate to form a bilaminar flexural vibrating element having combined dimensions which determine the resonant frequencies.

3,707,132

SOD KNIFE FOR ANHYDROUS AMMONIA

Clarence M. Hansen, East Lansing, Mich., assignor to Board of Trustees of Michigan State University, East Lansing, Mich.

Filed July 1, 1970, Ser. No. 51,644
Int. Cl. A01c *23/02*
U.S. Cl. 111—7 **4 Claims**



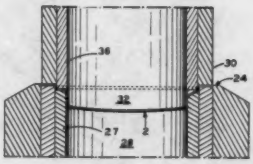
A constant attitude sod knife for injection of anhydrous ammonia to the soil which includes a ground opening blade structure, a gas injection tube disposed at the heel or trailing of the blade and covered by a diffusion director vane or wing and subsequently by a tamping or compaction vane or wing which serves to restrict emission of gaseous materials to the atmosphere and a spring biased carriage facilitating a constant running attitude whereby the blade may change elevation without changing attitude, and an impact disengaging connection and depth control wheel for the carriage.

3,707,133

CROWN AND METHODS OF MAKING SAME

Caleb H. Myer, Columbia, Pa., assignor to Kerr Glass Manufacturing Corporation, Los Angels, Calif.

Division of Ser. No. 770,989, Oct. 28, 1968, Pat. No. 3,497,098. This application Dec. 10, 1969, Ser. No. 880,521
Int. Cl. B21d *51/00, 28/00*
U.S. Cl. 113—121 A **2 Claims**



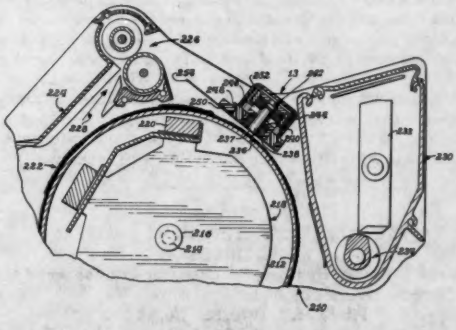
A crown particularly adapted for use with a liquid refreshment container wherein the crown is adapted to be turned off the threads on the container or pried off the container with a bottle opener. The crown has a smooth edge configuration so that it can be readily grasped by the fingers for turning without the fingers being cut by the sharp edges which are normal with a conventional serrated crown. The smooth edge configuration for the crown is secured by forming a lip portion on the peripheral edge of the crown. The crown may be formed by a forming die which provides the lip configuration at the same time it crimps the skirt of the crown, or a conventional crown may be forced through a sizing die to provide the lip configuration.

3,707,134

AUTOMATIC TONER CONCENTRATE DETECTOR AND CONTROL DEVICE

Stanley A. Gawron, Arlington Heights, Ill., assignor to Addressograph-Multigraph Corporation, Mount Prospect, Ill.

Filed Aug. 21, 1970, Ser. No. 65,902
Int. Cl. B05c *11/00*
U.S. Cl. 118—7 **9 Claims**



Apparatus for monitoring and controlling the ratio of toner to carrier particles of a dry developer mix includes an inductive sensing coil positioned in contact with the developer mix.

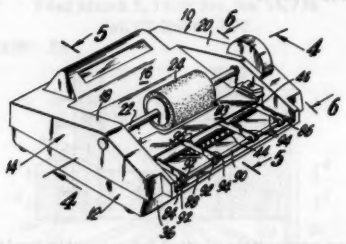
The voltage output of circuitry connected electrically to the sensing coil changes in response to a change in the inductive reactance of the sensing device due to changes in the ratio of toner to iron particles in the mix. A toner dispenser replenishes toner material to the mix in response to a predetermined change in the voltage output of the circuitry.

3,707,135

LIQUID APPLICATOR FOR STRIP MATERIAL

Everett E. Sharpe, Shelton, and Johnstone E. Hughes, Green Farms, both of Conn., assignors to Better Packages Inc., Shelton, Conn.

Filed Jan. 15, 1971, Ser. No. 106,745
Int. Cl. B05c *1/00, 1/04*
U.S. Cl. 118—244 **11 Claims**



A liquid applicator, particularly for applying a moistening agent or a glue to a label comprises, a housing made up of two parts, namely, a lower housing part forming a reservoir for the liquid material and an upper housing part having a sloping wall forming a label feeding channel and a mounting for a hand feed roll which is located over the channel. The lower housing part is characterized by a reservoir formation having end walls which are shaped in the form of a pouring spout to facilitate the outpouring of the liquid within the reservoir when the device is not to be used. The construction includes an open mounting for rotatably supporting each end of a grooved reservoir roller, an upper transfer roller which together with the lower reservoir roller forms the reservoir applicator means which are supported in open bearings formed by an end of the housing and by a hook-shaped closing element which is advantageously made up of a plastic material, such as Teflon. The construction permits the pressure engagement of the two rollers and the lower reservoir roller is advantageously provided with a spiral groove to provide a smooth application of the liquid from the reservoir to the upper roller. The two rollers are driven from a gear which is carried on a shaft for the main hand feed roller carried on the upper cover portion. This gear meshes with the upper roller gear and drives the two rollers at a speed which is slightly greater than the speed of feed of the label material in order to provide a wipening action of the liquid on the label as it is advanced between the applicator roller means and the feed roller. The cover also forms a mounting for open top receiving shells which are also advantageously made of a plastic material and which resiliently engage a rod member carrying spaced fingers which tangentially engage against the surface of the upper applicator roller to ensure that the label which is fed is lifted off its surface.

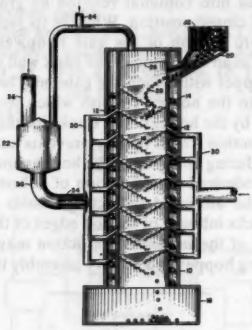
3,707,136

APPARATUS FOR PLATING HEAT-RESISTANT ARTICLES

George J. Kostas, Houston, Tex., assignor to Continental Oil Company, Ponca City, Okla.

Filed Dec. 2, 1970, Ser. No. 94,352
Int. Cl. B05c *5/00*
U.S. Cl. 118—303 **6 Claims**

Apparatus for plating heat-resistant articles which includes a hollow reaction chamber having a plurality of wire trays so positioned in the reaction chamber to control the fall of the articles through the chamber, a plurality of spray nozzles so positioned in the walls of the chamber to disperse plating solution throughout the reaction chamber, means for heating the



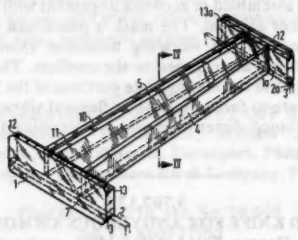
reaction chamber located along the walls thereof, a supply of plating solution connected to the spray nozzles to transfer the solution to the reaction chamber for the plating of the falling articles in the chamber, and a means for continuously recovering the plated articles.

3,707,137

THIN LAYER CHROMATOGRAPHY COATING DEVICE

Dieter Jaworek, Beringweg 6, 8132 Tutzino, upper Bavaria, Germany

Filed April 20, 1970, Ser. No. 29,930
Claims priority, application Germany, May 2, 1969, P 19 22 528.6
Int. Cl. B05c *5/02*
U.S. Cl. 118—415 **3 Claims**



Coating device for applying thin layers of uniform and defined thickness of adsorption agent onto chromatography plates comprising two vertical side members, two connecting parts affixed thereto, the connecting parts being mounted at an angle to each other to form a trough with a slit at the bottom thereof to permit slow flow-through of coating material, the height difference between the lower edges of the connecting parts and side members, respectively, defining the thickness of the coating applied.

3,707,138

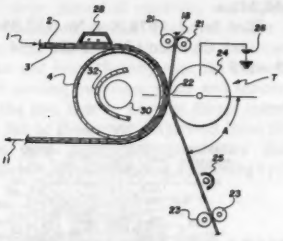
APPARATUS FOR TRANSFERRING A DEVELOPED IMAGE FROM A PHOTOSENSITIVE MEMBER TO A RECEIVER

Randle Velore Cartwright, Honeoye Falls, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Dec. 14, 1970, Ser. No. 97,649
Int. Cl. G03g *13/00*
U.S. Cl. 118—637 **5 Claims**

Apparatus is provided for transferring a developed toner image from a photoconductor to a receiver by a method which

includes applying to the receiver a bias voltage opposite in polarity to the charge on the developed toner image. The toned photoconductor is precharged to the same polarity as the developed toner image to assure a maximum charge on the



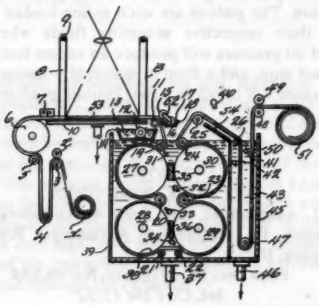
toner particles forming the image prior to their contact with the receiver and then flooded with light prior to and/or during the transfer to reduce the forces of attraction between the toner particles and the photoconductor.

3,707,139

LIQUID TYPE ELECTROPHOTOGRAPHY DEVELOPING APPARATUS

Osamu Fukushima; Masamichi Sato, and Seiji Matsumoto, all of Asaka, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Sept. 25, 1970, Ser. No. 75,491
Claims priority, application Japan, Sept. 26, 1969, 44/76682
Int. Cl. G03g *13/00*
U.S. Cl. 118—637 **9 Claims**



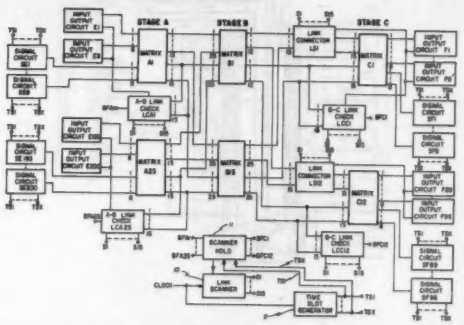
Liquid developing apparatus for use with an electrophotographic device wherein a plurality of images are sequentially exposed along the length of a web of electrophotographic sensitive material, the apparatus including (1) means for containing a liquid developer; (2) a plurality of developing electrodes, each of which is at least partially disposed within the liquid developer; (3) means for moving each of the developing electrodes along a closed path; (4) means for intermittently feeding the web of electrophotographic sensitive material through the developing liquid after each image exposure of the web to develop latent images on the sensitive material corresponding to the exposure images; (5) means for substantially maintaining a predetermined spacing between the sensitive material and the developing electrodes while the sensitive material is in the liquid developer; and the developing electrodes being so positioned that said images on the web are respectively in complete face-to-face relationship with respect to said developing electrodes whenever the web is stopped in the developer liquid during the intermittent feeding thereof so that the latent images are uniformly developed when the web is stopped.

3,707,140

TELEPHONE SWITCHING NETWORK SIGNALLING SYSTEM

Klaus Gueldenpfennig, Penfield; Uwe A. Pommerening, and Stanley L. Russell, both of Webster, all of N.Y., assignors to Stromberg-Carlson Corporation, Rochester, N.Y.

Filed Nov. 25, 1970, Ser. No. 92,588
Int. Cl. H04q *11/04*
U.S. Cl. 179—18 J **19 Claims**



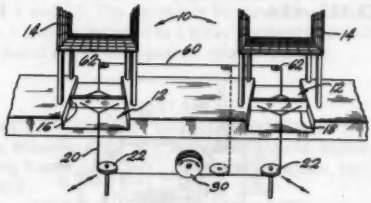
A signalling system is provided for signalling through a network of switching matrices. A time division circuit provides periodic signals to the switching matrices for path finding purposes and transmits other signals through completed paths during the periods between path finding signals.

3,707,141

CAPSTAN CABLE DRIVE

Elmer J. Boer, and Robert L. Van Huis, both of Zeeland, Mich., assignors to U.S. Industries, Inc., New York, N.Y.

Filed July 10, 1970, Ser. No. 53,837
Int. Cl. A01k *31/04*
U.S. Cl. 119—22 **5 Claims**



A pit cleaner for cages such as poultry cages and featuring a cable-pulled scraper and a cable drum on which the cable is wrapped and unwrapped to drive the cable, the drum being characterized as a capstan, the cable-engaging surface of which slopes away at the low point thereof from the axis of the capstan at an angle of between 5° and 25°.

3,707,142

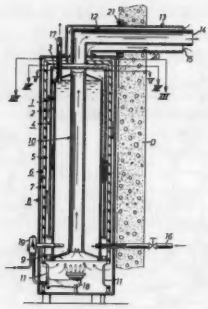
HEAT-PRESERVING BOILER

Shiro Kobayashi, Nagoya, Japan, assignor to Paloma Kogyo Kabushiki Kaisha, Nagoya-shi, Japan

Filed Sept. 24, 1971, Ser. No. 183,521
Claims priority, application Japan, Jan. 26, 1971, 46/2941
Int. Cl. F22b *9/02*
U.S. Cl. 122—17 **7 Claims**

The invention adds to a heat preserving boiler of the type including a water tank, a flue pipe extending vertically therethrough, and a combustion chamber disposed under the water tank, apparatus for improving the efficiency including a

drum spaced from and surrounding the water tank to form an annular downward outlet air passage between the outer surface of the water tank and the inner surface of the drum, a cover spaced about the drum to form an annular upward outlet air passage between the outer surface of the drum and the



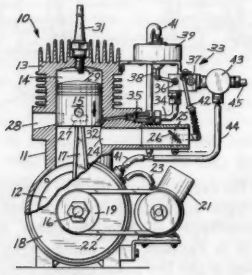
inner surface of the cover, a housing spaced about the cover to form an annular inlet air passage, and an outlet duct connected with the upward outlet air passage to lead exhaust gases to the atmosphere, the outlet duct being disposed within the inlet duct to form an extended inlet air passage.

3,707,143

FUEL INJECTION SYSTEM FOR TWO CYCLE ENGINE

Gerald D. Reese; Gerald G. Shank, both of Roseau, and Lowell D. Carlson, Pencer, all of Minn., assignors to Textron, Inc., Providence, R.I.

Filed July 27, 1970, Ser. No. 58,431
Int. Cl. F02b *33/04, 19/16, 33/00*
U.S. Cl. 123—65 A **14 Claims**



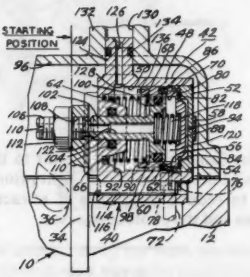
A low pressure fuel injection system for a two cycle internal combustion engine. Fuel is introduced into the combustion chamber during the intake cycle from a cavity in the wall of the combustion chamber supplied with fuel by metering apparatus that controls the flow of fuel in accordance with engine demand. The fuel is compressibly accumulated when the cavity is covered by the piston during the compression and combustion cycles. As the piston moves into the fuel intake cycle, the cavity is opened and the fuel charge is discharged therefrom and swept out by the flow of intake air for subsequent vaporization and combustion.

3,707,144

FUEL CONTROL DEVICE FOR FUEL INJECTION PUMP GOVERNORS

Leon A. Galis, Ludlow, Mass., and Donald E. Valentine, Brookfield, Wis., assignors to AMBAC Industries, Inc., Springfield, Mass.

Filed July 1, 1971, Ser. No. 158,894
Int. Cl. F02n *12/00;* **F02d** *1/04*
U.S. Cl. 123—179 L **11 Claims**



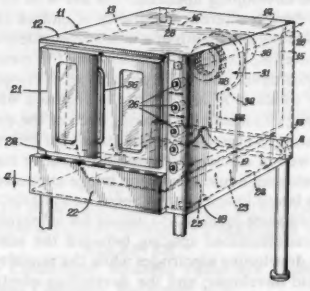
A control device for turbo charged diesel engines for varying the position of the fuel injection pump governor full load stop to provide excess fuel during engine cranking and to limit full load fuel delivery during acceleration and low speed operation. The device includes a cylinder, one end of which is connected to a source of engine lubricating oil and the other end of which is subjected to engine manifold pressure. An oil pressure responsive piston in the cylinder carries therewithin a smaller manifold pressure responsive piston which is connected directly to the governor full load stop to control the stop position. The pistons are each spring-loaded against the force of their respective actuating fluids whereupon an absence of oil pressure will produce an excess fuel position of the full load stop, and a drop in manifold pressure during engine operation will result in a fuel limiting position of the full load stop.

3,707,145

SELF-CLEANING OVEN

Richard J. Anetsberger, and John A. Anetsberger, both of Northbrook, Ill., assignors to Anetsberger Brothers, Inc., Northbrook, Ill.

Filed Dec. 16, 1970, Ser. No. 98,694
Int. Cl. F24c *15/32*
U.S. Cl. 126—21 A **9 Claims**



A self-cleaning oven with front door means and having inner and outer walls spaced in insulating relationship to each other and defining air passages at the rear, bottom and sides of the oven, with control means disposed in a side passage, air

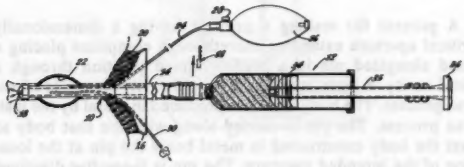
ducts in the lower ends of the side passages with apertures in their top walls and terminating adjacent the bottom of the front door means, and blower means comprising an inner fan disposed interiorly of the oven for circulating heated air therein, an outer fan in the rear air passage, and a motor exteriorly of the oven mounted coaxially with the fans, with shroud means spaced from the motor to insure movement through and around the motor of outside air drawn inwardly by the outer fan and blow thereby over the control and front door means for cooling purposes, plate and spacer means interconnecting the two fans to prevent direct transfer of heat from the inner fan to the motor, improved front door operating mechanism, and temperature-responsive door locking means automatically operable during a cleaning cycle.

3,707,146

MEANS TO INJECT A PLASTIC INTO A CAVITY TO PRODUCE A REPLICA THEREOF

Ralph J. Cook, Torrance; Clifford C. Moline, Malibu, and Joseph M. Schumann, Inglewood, all of Calif., assignors to Products Research & Chemical Corporation, Burbank, Calif.

Filed March 7, 1967, Ser. No. 621,174
Int. Cl. A61b *05/10*
U.S. Cl. 128—2 R **24 Claims**



The particular embodiment of the invention disclosed herein is specifically designed to produce a soft resilient plastic impression of the interior configuration of a body cavity, the invention having special utility for the purpose of medical diagnosis for exploring the lower portion of the large intestine. For this purpose, the invention provides a catheter for insertion into the body cavity in combination with a disposable cartridge containing isolated ingredients of a fast curing polymer, the cartridge being adapted for rapid preparatory intermixture of the ingredients and immediate extrusion of the mixture to and through the catheter.

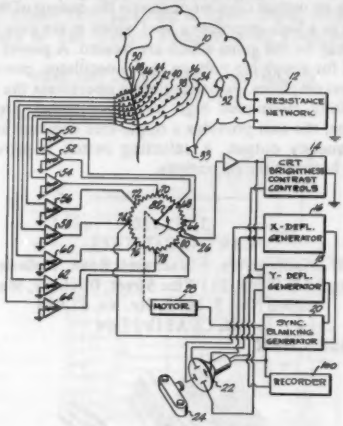
3,707,147

MEANS AND METHOD FOR PICTORIAL PRESENTATION OF PHYSIOLOGICAL SIGNALS WHICH VARY WITH TIME AND POSITION

Ernest E. Sellers, 2105 Copley Avenue, Ann Arbor, Mich.

Continuation-in-part of Ser. No. 634,960, May 1, 1967, abandoned. This application Aug. 13, 1970, Ser. No. 63,394
Int. Cl. A61b *5/04*
U.S. Cl. 128—2.06 G **17 Claims**

A method and apparatus are disclosed for recording and displaying in a single picture the value of a signal, such as an electrocardial voltage, which varies as a function of time and position on a body. The display may be formed on an oscilloscope and is like a television picture in that an entire area is filled with information and each point in the area and the overall pattern are meaningful. The display shows signal value as a function of time along one axis and shows signal value as a function of position along another axis. The beam of the cathode ray tube is deflected through multiple sweeps along one axis while deflecting it through a single sweep along the other axis with traces which effectively fill the area bounded by the axes. The deflection along the respective axes are correlated with time and position on the body and the beam is continuously modulated in accordance with the amplitude of the signal. Preferably, the beam is deflected with multiple traces along the position axis and the signal is measured at discrete positions. The value of the signal at intermediate positions is derived by interpolation and the modulation is preferably accomplished by intensity modulation of the beam to achieve various shades of grayness.



3,707,148

IMPREGNATED DIAPER

Douglas Maxwell Bryce, Long Eaton, England, assignor to Boots Pure Drug Company Limited, Nottingham, England

Filed June 1, 1970, Ser. No. 42,522
Claims priority, application Great Britain, June 5, 1969, 28,230/69
Int. Cl. A61f *13/16*
U.S. Cl. 128—284 **13 Claims**

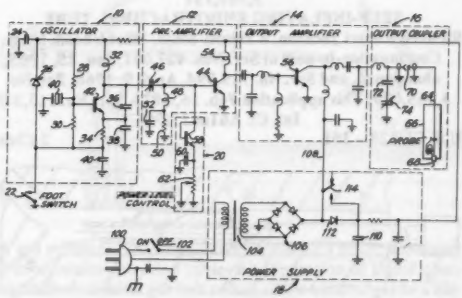
Ammonia absorbing products are described which comprise a non-volatile ammonia absorbing agent having a pK value of between 1.8 and 4.5. The agent may be carried in or on a sheet carrier or it may be included in a water permeable sachet. The products are of use as, or as part of, infants' napkins.

3,707,149

ELECTROSURGERY UNIT AND INSTRUMENT

Shya Hao, Monsey; Alvin M. Chasen, and Alan M. Miller, both of Spring Valley, all of N.Y., assignors to Majesco, Inc., New York, N.Y.

Filed Oct. 16, 1970, Ser. No. 81,431
Int. Cl. A61b *17/36*
U.S. Cl. 128—303.14 **10 Claims**



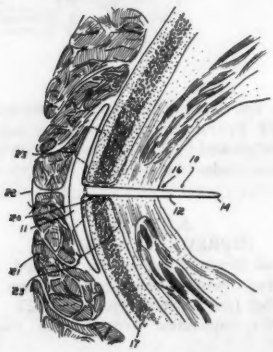
An electrosurgery unit for carrying out various medical or dental operations. An oscillator of the unit provides an output

signal of a given high frequency, and this signal is received by a pre-amplifier which provides an amplified signal. An output amplifier receives the latter signal and provides a given output, while an output coupler connects the output of the output amplifier to a high-impedence load which in the case of dental surgery may be the gums which are treated. A power supply is provided for supplying voltage to the oscillator, pre-amplifier and output amplifier. For coagulating operations the unit provides a fully modulated high frequency signal. For cutting operations, the unit provides a ripple-free constant amplitude high frequency output. A selecting switch is provided for selecting between the operations.

3,707,150
LARYNGEAL KEEL

William W. Montgomery, 3 Wachusett Road, Wellesley, Mass., and Eugene B. Hood, 211 Vine Street, Duxbury, Mass.

Filed Nov. 5, 1970, Ser. No. 87,094
Int. Cl. A61b *17/04*
U.S. Cl. 128—334 R **6 Claims**

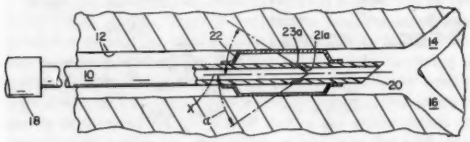


A laryngeal keel is disclosed that is effective in preventing the recurrence of anterior glottic stenosis after surgical correction thereof. The keel is molded from silicone rubber and includes a flexible extralaryngeal portion and a flexible keel portion dimensioned to extend through the anterior commisure and sufficiently thin to ensure that said commisure is sharp and that the thyroid laminae can be closely approximated. The extralaryngeal portion is dimensioned to umbrella the area of the anterior commisure to prevent the escape of laryngeal secretions by way of the thyrotomy and to be sutured securely to the thyroid laminae. The flexibility of the umbrella portion minimizes asynchronous motion between the keel and the vocal cords. These factors, together with the inertness of the silicone rubber ensure re-epithelialization of the incised tissue in engagement therewith.

3,707,151
SELF-INFLATING ENDOTRACHEAL TUBE

Richard Robert Jackson, 8 Trinity Road, Marblehead, Mass.

Continuation-in-part of Ser. Nos. 427,601, Jan. 25, 1965, abandoned, and Ser. No. 719,994, April 9, 1968, Pat. No. 3,565,079. This application Feb. 16, 1971, Ser. No. 115,249
Int. Cl. A61m *25/00*
U.S. Cl. 128—351 **2 Claims**

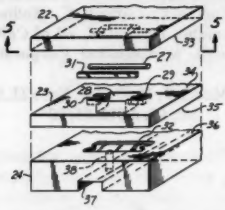


Endotracheal tubes with cuffs that self-inflate during inspiration and remain inflated during expiration, in which the Coanda effect is employed to lead air into the cuff for inflation. Shown is a tube having an opening through its wall into the cuff volume with a surface arranged to lead air into the cuff during inspiration, and a check valve to prevent outward flow of air. Also shown is a cuff having openings arranged to lead air into the cuff during expiration. The cuffs shown are substantially larger than the trachea and are of thin film material.

3,707,152
METHOD OF CASTING PARTS HAVING DIMENSIONALLY CRITICAL APERTURES

George R. Arnold, and Raymond S. Rosiello, both of Glendora, Calif., assignors to Ormco Corporation, Glendora, Calif.

Filed Jan. 18, 1971, Ser. No. 107,032
Int. Cl. B22c *7/02*
U.S. Cl. 164—45 **5 Claims**

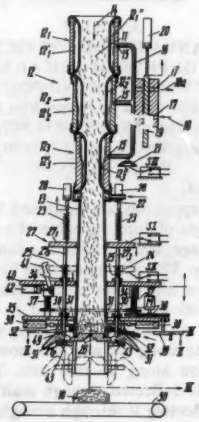


A process for making a product having a dimensionally critical aperture extending therethrough comprises placing a sized elongated pin in a predetermined position through a mold cavity. A body is cast in the mold cavity for use in a lost-wax process. The body is then reproduced in metal by the lost-wax process. The pin is carried along with the cast body so that the body constructed in metal bears the pin at the location of the intended aperture. The pin is thereafter dissolved from the metal body.

3,707,153
METHOD AND APPARATUS FOR SEGREGATING STRANDS OF TOBACCO

Konrad Brunhorn, and Heinz Groschel, both of Bremen, Germany, assignors to Martin Brinkmann Aktiengesellschaft, Bremen, Germany

Filed Dec. 4, 1970, Ser. No. 95,269
Claims priority, application Germany, Dec. 6, 1969, P 19 61 407.4
Int. Cl. A24b *07/14*; A24c *01/02*
U.S. Cl. 131—22 A **13 Claims**



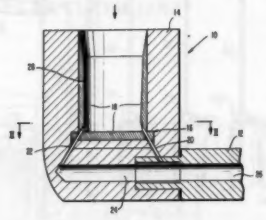
The method and apparatus for segregating equally weighted portions of tobacco utilizes a feeder channel having a number

of variable cross section portions. Pneumatic pressure varies the cross-sectional area of the channel in accordance with the desired degree of condensing of the tobacco strand. A lower channel member is fed compressed air to assist the movement and axial compressing of the tobacco into a final portioning chamber. Converging knife blades effectively remove the desired portion of tobacco to provide the equally weighted increments. Feed measuring springs are utilized to insure control of the weighted tobacco increments.

3,707,154
TOBACCO PIPE BOWL

Friedel Recht, No. 7 Fassbenderkaul, Cologne, Arnoldshohe, Germany

Continuation-in-part of Ser. No. 841,839, July 15, 1969, abandoned. This application July 16, 1971, Ser. No. 163,307
Claims priority, application Germany, July 16, 1968, P 17 82 072.3
Int. Cl. A24f *01/18*
U.S. Cl. 131—216 6 Claims

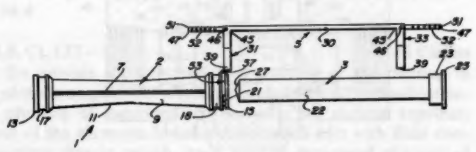


A tobacco pipe bowl includes a tobacco receiving and smoking chamber and a smoke duct located in the bowl below the chamber. Two inclined bores connect the chamber with the ends of the smoke duct below the side wall portions of the chamber. A coating of cement which becomes fire proof and scratch resistant with the application of heat is applied to the side wall and bottom of the tobacco receiving chamber and is held into the chamber by an undercut shoulder below the chamber. The upper ends of the bores open into the chamber through the cement coat on the side wall portions adjacent to and above the bottom of the chamber.

3,707,155
EXPANDABLE HAIR CURLER

Alfred A. Lemberg, 9821 Lorelei Drive, Cincinnati, Ohio

Filed Jan. 24, 1972, Ser. No. 219,969
Int. Cl. A45d *2/00*
U.S. Cl. 132—40 6 Claims

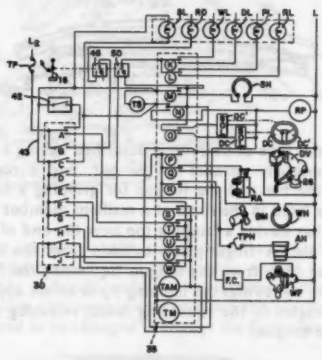


Disclosed herein is an expandable and contractable hair curler.

3,707,156
DISHWASHING MACHINE WITH AUTOMATIC INDICATING SIGNALS

Stuart E. Athey, Troy, and Paul B. Giger, Pigua, both of Ohio, assignors to The Hobart Manufacturing Company, Troy, Ohio

Filed July 21, 1971, Ser. No. 164,586
Int. Cl. B08b *3/02*
U.S. Cl. 134—57 DL 7 Claims

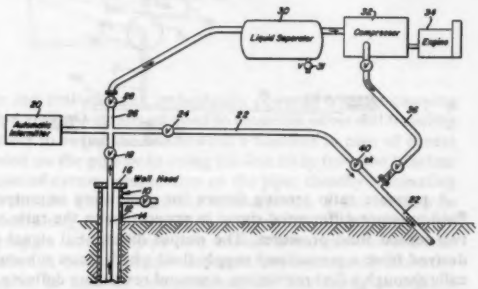


A dishwashing machine has a series of push button switches for selecting various program cycles which include a rinse-only cycle and a normal or full cycle having successive detergent wash, fresh water rinse and forced air drying periods. A light signal is energized if the rinse-only cycle is selected and the door latch is actuated during or after the completion of that cycle, to indicate to the operator that the rinse-only cycle was the last cycle to be run on the machine. The machine also includes a series of lights for successively indicating the corresponding operational periods of each cycle. When each light is energized, it remains energized when the machine is interrupted before the end of a cycle by actuating the door latch, to remind the operator that the cycle is not completed.

3,707,157
NATURAL GAS SAVER WITH SEPARATOR AND COMPRESSOR

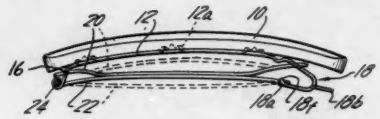
Damon F. Tipton, P.O. Box 675, Aztec, N. Mex., and Lonnie R. Jeffers, 1900 Wagner, Farmington, N. Mex.

Filed Aug. 4, 1971, Ser. No. 168,841
Int. Cl. E21b *43/00*
U.S. Cl. 137—14 5 Claims



A gas pressure relieving system including a liquid separator and compressor provided to permit separation of liquid components from natural gas and return of the natural gas to a distribution system at an appropriate pressure. The system avoids the pollution normally effected by burn-off at a well head and at the same time provides for recovery of liquid gas for later processing.

3,707,158
BARRETTES
Jacob Goodman, New York, N.Y., assignor to H. Goodman & Sons, Inc., Kearny, N.J.
Continuation-in-part of Ser. No. 742,336, July 3, 1968, abandoned. This application Feb. 22, 1971, Ser. No. 117,460
Int. Cl. A45d *8/24*
U.S. Cl. 132—48 R **10 Claims**

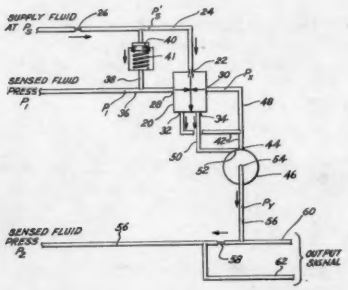


A popular type of barrette is described having a rigid bar, a tongue generally parallel to the bar, and a resilient strip between the bar and the tongue for gripping a lock of hair. There is a latch in the form of a resilient member upstanding from the bar having a latching top over the end of the tongue when in use. A finger-piece extends from the latching tip lengthwise away from the tongue. Squeezing the finger-piece toward the bar swings the latching tip in an arc approximately at right angles to the squeezing force, releasing the latched end of the tongue.

ERRATUM

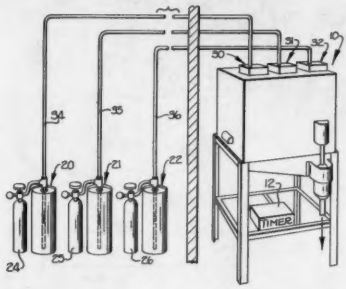
For Class 137—14 see:
Patent No. 3,707,157

3,707,159
FLUID PRESSURE RATION SENSING DEVICE
James M. Eastman, South Bend, Ind., assignor to The Bendix Corporation
Filed March 24, 1971, Ser. No. 127,685
Int. Cl. F15c *1/12*
U.S. Cl. 137—81.5 **8 Claims**



A pressure ratio sensing device for generating an output fluid pressure differential signal in proportion to the ratio of two sensed fluid pressures. The output differential signal is derived from a pressurized supply fluid which flows subsonically through a first restriction, a second restriction defining a power jet for a dual output proportional acting fluidic amplifier having opposed control fluid ports, a vortex amplifier having a radial supply port and a tangential control port, and a third restriction to the lower of the two sensed fluid pressures. The fluid pressure intermediate the first and second restrictions is controlled to maintain the same in excess of the higher of the two sensed fluid pressures. The higher of the two sensed pressures is applied to one of the opposed control fluid ports of the proportional amplifier to bias the power jet thereof toward one of the dual outputs which, in turn, is vented to the tangential port of the vortex amplifier. The remaining of the dual outputs is vented to the radial supply port of the vortex amplifier as well as to the second of the control ports of the proportional amplifier. The pressure drop across the third restriction provides the output pressure differential signal which varies in proportion to the ratio of the sensed two fluid pressures. The effective flow area of the third restriction is such that the pressure differential thereacross does not exceed the expected minimum pressure of the lower of the two sensed fluid pressures.

3,707,160
REMOTE STORAGE ARRANGEMENT FOR DISHWASHING TREATING AGENT
Grady W. Query, 1725 Mist Hill Road, Matthews, N.C.
Filed Feb. 1, 1971, Ser. No. 111,304
Int. Cl. B08b *3/00*
U.S. Cl. 137—209 **3 Claims**

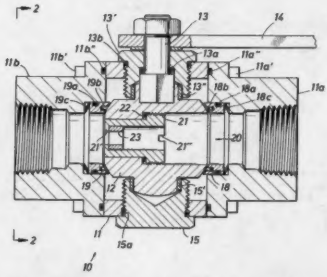


Chemically active, liquid treatment agents are dispensed to a dishwashing apparatus which circulates liquid to cleanse soiled dishes from an intermediate reservoir at the dishwashing apparatus, with the intermediate reservoir being supplied with liquid treating agent by the combination of a remote storage reservoir, a flow motivating apparatus, and apparatus for controlling the flow of liquid treating agent between the reservoirs.

ERRATUM

For Class 137—81 see:
Patent No. 3,707,440

3,707,161
VARIABLE CHOKE VALVE
Douglas W. Crawford, P.O. Box 7471, Houston, Tex.
Filed Sept. 23, 1970, Ser. No. 74,621
Int. Cl. F16k *47/10*
U.S. Cl. 137—269 **7 Claims**



A valve of the type having a rotatable closure member with a flow passage which may be moved into and out of communi-

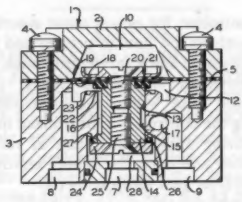
cation with flow passages in the valve housing to respectively permit and terminate flow through the housing is provided with removable housing segments whereby direct access to the passage in the closure member is possible through the housing wall when the closure member is rotated out of communication with the housing flow passage. The closure member passage is adapted to carry removable inserts to permit variation in flow passage or choke size. Exchange of inserts is made possible even while the valved fluid is under pressure.

In a modified form, a mechanism is provided for variation of choke size in the closure member without the need for removal of a portion of the housing wall to permit adjustment of choke size in the closure member while fluid is flowing through the valve. The mechanism is removable from the valve housing when the valve is in the off position.

3,707,162
LOGIC CONTROL VALVE

Wilhelm Bachmann, Godshorn, Germany, assignor to Westinghouse Bremsen-und Apparatebau, GmbH, Hannover, Germany

Filed April 8, 1971, Ser. No. 132,383
Claims priority, application Germany, April 23, 1970, P 20 19 650.3
Int. Cl. F16k *11/02*
U.S. Cl. 137—269 **9 Claims**



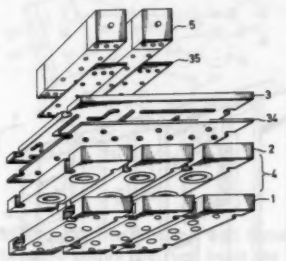
A fluid logic valve device of the type having a fluid pressure supply port, an exhaust port, and an operating diaphragm member selectively subjectable to a control pressure, whereby the valve device may be employed wither as an AND device or as a NOT device by interchanging the fluid pressure supply and exhaust connections relative to said ports, and wherein the improvement comprises a pair of coplanar, concentrically arranged annular valve seats of different diameters and with which respective interchangeable valve elements are used to provide a high ratio of control pressure area to supply pressure area, for both the AND and NOT functions, and therefore insure positive, quick action of the device.

3,707,163
CONTROL VALVE BLOCK FOR GASEOUS OR LIQUID FLUID MEDIA FOR UNIVERSAL APPLICATION

Klaus Hugler, Esslingen, Germany, assignor to Firma Robert Klinger Kunststoff-Spritzgusswerk, Asperglen Uber Schorndorf, Germany

Filed June 30, 1971, Ser. No. 158,499
Claims priority, application Germany, July 8, 1970, P 20 33 736.4
Int. Cl. F15c *1/06*
U.S. Cl. 137—271 **16 Claims**

To provide for universal programming of the ducting in hydraulic or gaseous valves, particularly for servo application, a plurality of superimposed elements are secured together; one of the elements forms a distribution unit with fluid connections therein, which, itself, may be composed of a pair of plates, one having valve openings and cylinder spaces formed therein and the other having valve units matching the cylinder spaces; a selectively replaceable programming plate, having ducts formed therein in accordance with a hydraulic connection program is secured to the distribution unit; the programming plate can be connected to one or more control valves, the alignment of the ducts in the control plate with the piston and cylinder openings in the distribution unit and in the

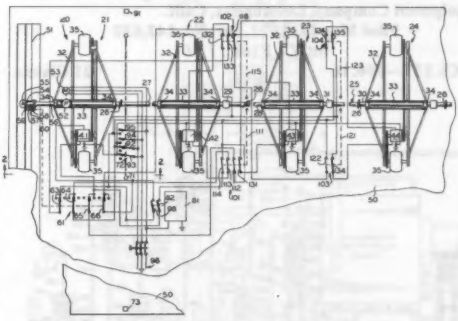


control valves, as well as with selected power output valves being readily determinable and changeable, so that a universally applicable hydraulic unit can be constructed utilizing basic distribution unit components in which the programming plate, only, need to be changed to change the fluid circuit.

3,707,164
LINE MOVE

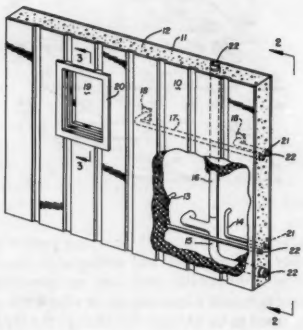
Victor G. Clemons, 10716 Cruser Drive, Boise, Idaho

Filed June 24, 1970, Ser. No. 49,464
Int. Cl. B05b *9/02*; E01h *3/02*
U.S. Cl. 137—344 **20 Claims**



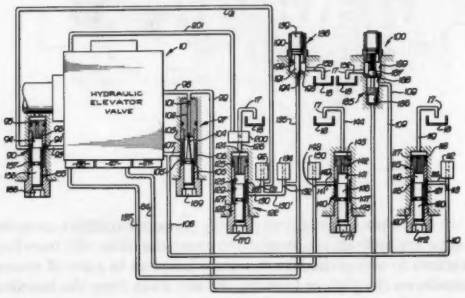
In one embodiment, individually powered tractors carrying a pipe are individually stopped to cause the other still traveling tractors to swing the line toward a baseline in case of excess tension on the pipe or to swing the line away from the baseline in case of excess compression on the pipe, thereby eliminating drift of the line. In another embodiment, a first tractor is guided along a baseline ditch and wheels of other tractors helping to carry a pipe are turned somewhat toward the baseline in case of tension and are turned outwardly from the baseline in case of compression, the line being swingable about the first tractor at each end of the baseline so as to travel along one side of a field, around an end portion of the field back along the other side of the field and around the other end portion of the field. Tension and compression of the pipe may be detected by feeler structure movable along a ditch forming the baseline or by feelers on loose ball-and-socket joints, mechanically connecting sections of the pipe together.

3,707,165
PLASTIC PLUMBING WALL
Joel S. Stahl, 746 Golfview, Youngstown, Ohio
Filed Aug. 10, 1970, Ser. No. 62,586
Int. Cl. E04f 17/08
U.S. Cl. 137—594 3 Claims



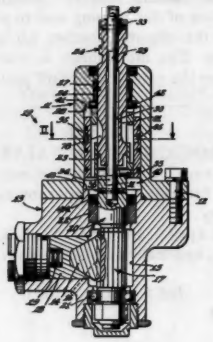
A wall unit having integrally formed surface panels and a foam core encloses supports and positions hot and cold water pipes and drain and vent piping along with electrical wiring. Window and door openings in said panel are defined by thin lightweight frames. The wall unit comprising a bearing wall dependent upon a rigid foam core with plastic facings.

3,707,166
UNIT VALVE FOR HYDRAULIC ELEVATOR CONTROL
William Anthony Perry Lawrence, Santa Susana, and James Arthur Mills, Sunland, both of Calif., assignors to Elevator Equipment Company, Los Angeles, Calif.
Filed May 12, 1971, Ser. No. 142,639
Int. Cl. F16k 11/10
U.S. Cl. 137—596.16 21 Claims



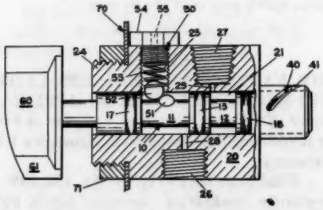
A unit valve assembly for operation of a hydraulic elevator including three separate valve devices for performing four valve functions, for controlling up bypassing, main down, down leveling and checking are all being made part of a single housing. Controls respectively for up acceleration, up transition, up level, down full speed, down leveling and stop are also mounted on the housing in position, such that adjustments for all said valve devices and controls are located for ready accessability on one side of the housing. A special up level valve having a progressively graduated orifice control is hydraulically actuated to improve the smoothness of up leveling of the elevator.

3,707,167
HYDRAULIC CONTROLLER INCLUDING ROTARY VALVE
John B. Colletti, Grosse Pointe Park, Mich., assignor to TRW Inc., Cleveland, Ohio
Filed June 25, 1970, Ser. No. 49,708
Int. Cl. F15b 9/10; F16k 11/12
U.S. Cl. 137—625.24 4 Claims



A hydraulic controller, for power assist steering or the like systems, which controls the flow of pressurized fluid between a main power fluid pump and a servomotor such as a hydraulic cylinder. The controller includes a rotary valve assembly which confines the fluid within the controller to a valve chamber, enabling the controller to be utilized in remote or integral power steering applications such as rack and pinion gear system without admixing the lighter servomotor operating oil from the heavier gear lubricating oil.

3,707,168
ROTARY SPOOL VALVE
Wallace G. Boelkins, Grand Rapids, Mich., assignor to Uni-Mist, Inc., Grand Rapids, Mich.
Filed Sept. 30, 1970, Ser. No. 76,695
Int. Cl. F16k 11/02
U.S. Cl. 137—625.48 6 Claims

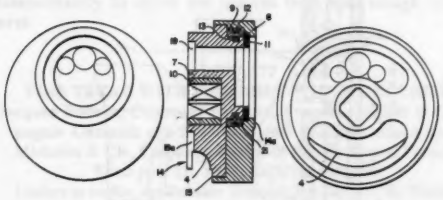


The specification discloses a spool valve including a spool mounted within a passage within a valve body. The spool can be rotated by means of a knob and includes a pin extending into a helical slot in the valve body such that rotation of the spool results in its axial movement to thereby control the flow of fluid between various lateral passages extending through the valve body and communicating with the passage therethrough. A spring-biased ball held by the valve body rides across a camming surface on the spool to provide a detent for spool movement and to bias the spool towards either one or the other of its possible positions.

3,707,169
HYDROSTATICALLY BALANCED PLATE VALVE WITH LOW FLOW RESISTANCE

Ingo Friedrichs, Bad Oeynhausen, Germany, assignor to Eisenwerk Wererhutte A.G., Bad Oeynhausen, Germany

Filed March 31, 1971, Ser. No. 90,180
Claims priority, application Germany, Oct. 6, 1969, P 19 50 253.5
Int. Cl. F01l *33/02*
U.S. Cl. 137—625.21 9 Claims

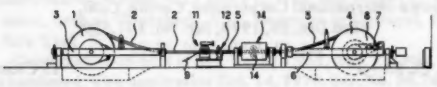


The invention relates to a valve having low flow resistance. The valve is hydrostatically balanced with a pressure field located eccentrically opposite a kidney-shaped control slot in a valve disc.

3,707,170
METHOD OF MAKING A TUBULAR MEMBER BY HELICALLY COILING A METALLIC STRIP, TUBULAR MEMBER PRODUCED BY THIS METHOD AND DEVICE FOR CARRYING OUT THIS METHOD

Rene A. Mazuir, and Daniel E. Hoffmann, both of Bourg-en-Bresse, France, assignors to Societe Anonyme Des Hauts Fourneaux De La Chiers, Longwy-Bas, France

Filed July 6, 1970, Ser. No. 52,295
Claims priority, application France, July 10, 1969, 6923531
Int. Cl. F16l *9/16*; B21c *37/12*
U.S. Cl. 138—154 13 Claims



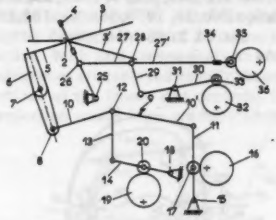
A strip having hooked edges is laterally curved and coiled into a spiral in which the hooked edges of adjacent coils overlap. Just before the coils are overlapped the strip is formed into a helix the turns of which slant in a direction opposite to that of the turns of the helix finally formed so that when adjacent turns are forced into engagement with each other adjacent turns are resiliently biassed toward each other. The invention includes apparatus adapted to carry out this method and the tubular member produced thereby.

3,707,171
NEEDLE LOOM FOR PILE FABRICS

Jakob Muller, 5262 Frick, Switzerland

Filed June 8, 1971, Ser. No. 151,092
Claims priority, application Austria, June 9, 1970, 5162/70
Int. Cl. D03d *39/22*
U.S. Cl. 139—25 10 Claims

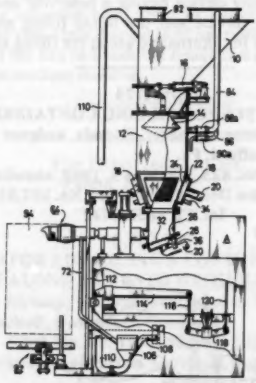
The tying needle of a needle loom producing a pile fabric by beating into the fell of the fabric groups of weft threads inserted into warp sheds including tight warp threads and loose pile warp threads, is reciprocated conforming to reciprocating movements of the reed. A stripper for the tying needle is operated in the same manner, and an arresting needle is provided for holding the first inserted weft thread of a group, releasing the same before the reed beats the group of weft threads into the fell of the fabric.



3,707,172
AUTOMATIC APPARATUS FOR PACKAGING POWDERED MATERIAL WITH UNIFORM BAG WEIGHT AND WITH DUST-FREE OPERATION

Kaisuji Obara, No. 2233-42, Minami Tsunashima-cho, Kohoku-ku, Yokohama, Japan

Filed Jan. 25, 1971, Ser. No. 109,299
Int. Cl. B65b *31/02*
U.S. Cl. 141—59 14 Claims



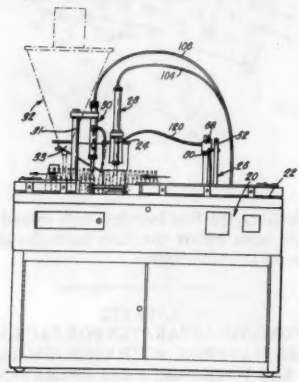
An automatic packaging apparatus for powdered material comprising a hopper for containing such material, a chamber disposed beneath said hopper and a housing arranged beneath the bottom of said chamber. Air inlet means are provided for admitting air into the chamber and the housing for fluidizing the material delivered thereto. The housing is provided with clog inhibiting means for urging the fluidized material through and out of said housing. Flow control means is connected to feed pipe means for controlling the rate of flow of the material through said feed pipe means, said filling means is associated with the flow control means for discharging the material into a bag, the filling means being provided with a flexible sleeve for assisting smooth flow of the material. Automatic weighing means is operatively connected to the flow control means to selectively regulate material flow according to bag weight whereby a plurality of bags may be filled to a uniform weight, and a bag seat means is arranged independent of the weighing means for urging the delivery of the bag from the apparatus. The dust in said chamber and at said filling means is recirculated back into the hopper.

3,707,173

APPARATUS FOR FILLING CONTAINERS

Roy D. Lewis, Montreal, Quebec, Canada, assignor to G. Diehl Mateer Co., Strafford, Pa.

Division of Ser. No. 823,348, May 9, 1969, abandoned. This application Dec. 30, 1970, Ser. No. 102,856
Int. Cl. B65b *1/04, 3/04*
U.S. Cl. 141—104 5 Claims



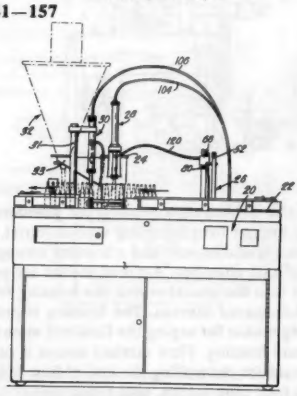
A machine for automatically filling containers such an ampoules and the like having a circular indexing table for moving the containers through a filling station. A liquid filling device having a discharge nozzle, an adjustable volume metering chamber and a valve controlling the filling of the chamber and the discharging of the liquid to the container through the nozzle. A powder filling device having a reservoir and a nozzle, the powder filling device and the liquid filling nozzle being rotatably mounted for alternative use at the filling station.

3,707,174

APPARATUS FOR FILLING CONTAINERS

Roy D. Lewis, Montreal, Quebec, Canada, assignor to G. Diehl Mateer Co., Strafford, Pa.

Division of Ser. No. 823,348, May 9, 1969, abandoned. This application Dec. 30, 1970, Ser. No. 102,858
Int. Cl. B65l *43/42*
U.S. Cl. 141—157 7 Claims



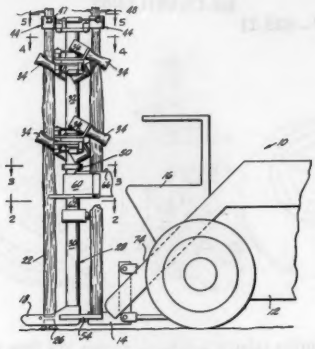
A machine for automatically filling containers such as ampoules and the like having a circular indexing table for moving the containers through a filling station. A liquid filling device having a discharge nozzle, an adjustable volume metering chamber and a valve controlling the filling of the chamber and the discharging of the liquid to the container through the nozzle. A powder filling device having a reservoir and a nozzle, the powder filling device and the liquid filling nozzle being rotatably mounted for alternative use at the filling station.

3,707,175

METHOD AND APPARATUS FOR HARVESTING TREES

Robert L. Propst, 2347 Londonderry Avenue, Ann Arbor, Mich.

Filed July 20, 1970, Ser. No. 56,583
Int. Cl. A01g *23/02*
U.S. Cl. 144—309 AC 10 Claims



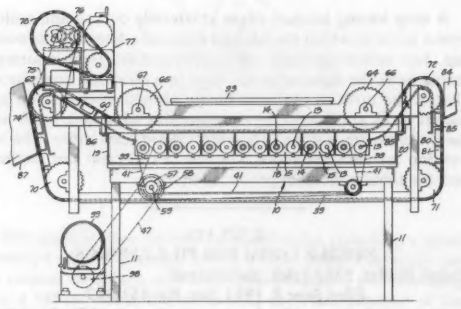
The method and apparatus for harvesting trees wherein a tree to be harvested is gripped, severed from its base, and then rotated about a substantially vertical axis spaced from the tree to a processing position. The vehicle on which the apparatus is mounted includes gripping and feeding rollers which feed the tree downwardly in the processing position of the tree while the vehicle is moving toward another tree to be harvested. During downward movement of the tree, it is cut into log lengths by cooperating rotatable blades and the log lengths are then moved to stored positions on the vehicle. By virtue of the location of the tree processing apparatus at a position spaced from the apparatus which initially grips and severs the tree, one tree can be processed while the vehicle is moving toward and severing another tree to be processed.

3,707,176

APPARATUS FOR EXTRACTING CITRUS PEEL OIL FROM WHOLE FRUIT

Ronald C. Bushman, Hacienda Heights, Calif., assignor to Brown International Corporation, Covina, Calif.

Filed Dec. 28, 1970, Ser. No. 101,590
Int. Cl. A23n *1/00, 15/02*
U.S. Cl. 83—2 15 Claims



A series of pairs of toothed roll assemblies form bights or troughs for reception of whole lemons, and all of the toothed roll assemblies turn in the same direction, every other one turning at higher speed. The higher speed rolls comprise a plurality of discs each having a toothed periphery, the discs being

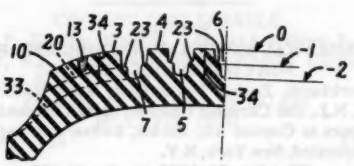
frictionally driven from a supporting shaft. The slower speed rolls comprise toothed discs of the same type but are clamped solidly to rotate with the slower speed shaft. Each of the slower speed rolls includes a plurality of bumper elements spaced along the length of the roll and each having a protuberance extending beyond the periphery of the toothed discs, the protuberances serving to shift the lemons about in the troughs between adjacent rolls and to insure that substantially the entire outer surface of the lemon is exposed to the oil cell puncturing action of the teeth of the discs. The toothed discs are submerged in a pool of water and the puncturing action takes place below the water level to minimize losses in recovery of the oil. A conveyor driven by a Geneva movement advances intermittently to move the lemons from one trough to the next.

3,707,177

TIRE TREAD WITH VARIABLE-WIDTH RECESSES

Jacques Boileau, Clermont-Ferrand, France, assignor to Compagnie Generale des Etablissements Michelin raison sociale Michelin & Cie, Clermont-Ferrand, Puy-de-Dome, France

Filed Jan. 19, 1971, Ser. No. 107,650
Claims priority, application France, Jan. 21, 1970, 702204
Int. Cl. B60c *11/06*
U.S. Cl. 152—209 **4 Claims**



A pneumatic tire is provided with a tread whose recessed portions have a width that decreases from the surface of the tread towards the axis of the tire. The recessed portions have a greater variation of width as a function of depth at the edges than in the central part of the tread.

3,707,178

ADHESION OF RAYON TEXTILE TO RUBBER WITH AQUEOUS DISPERSION OF BLOCKED ISOCYANATE OR ISOCYANATE DIMER, RUBBER LATEX AND RESORCINOL-FORMALDEHYDE RESIN

Robert Miller, Wayne, N.J.; Jerry L. Witt, and Mabry L. Tidmore, both of Winnsboro, S.C., assignors to Uniroyal, Inc., New York, N.Y.

Continuation-in-part of Ser. No. 874,961, Nov. 7, 1969, abandoned. This application Oct. 14, 1970, Ser. No. 80,746
Int. Cl. B32b *27/40*; B60c *9/10*; C09j *3/12*
U.S. Cl. 152—358 **16 Claims**

Rayon or nylon textile material (e.g., tire cord) which fails to develop adequate adhesion to rubber when pre-treated with the conventional aqueous RFL solutioning bath, is re-treated with an RFL solution to which an aqueous slurry of blocked isocyanate or isocyanate dimer has been added. The re-treated textile is dried and laminated to vulcanizable rubber stock. Upon vulcanization of the rubber, the re-treated textile develops satisfactory adhesion.

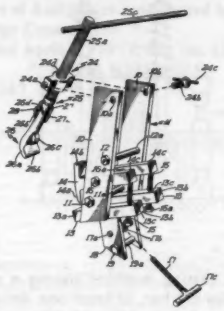
3,707,179

TIRE REMOVING DEVICE FOR BREAKING THE BEAD OF FARM TRACTOR TIRES TO FACILITATE REMOVAL FROM THE RIM

Arvid H. Le Pier, Fosston, Minn., assignor to Howard H. Le Pier, Fosston, Minn., a part interest

Continuation-in-part of Ser. No. 739,284, July 24, 1968, abandoned. This application July 8, 1970, Ser. No. 53,215
Int. Cl. B60c *25/06*
U.S. Cl. 157—1.17 **7 Claims**

A device or apparatus for "breaking" the beads of a farm tractor tire mounted on a conventional drop center rim employs a rigid rectangular mounting structure affixed and supported only from the bead-holding shoulder of one side of the rim. Rigid support is obtained by a novel structure of closely interfitting pairs of jaws spaced apart on the frame. With said mounting and pairs of clamping jaws a second function of the clamping action is obtained by interfitting of wedge-shaped claws to slightly displace the bead from the shoulder during clamping action. With said components an elongate, longitudinal bead-displacer is employed readily mounted on the outermost portions of the frame and centrally thereof for longitudinal projection under high pressure force and having a



wedge-like head interposed between the upstanding flange of the bead-holding shoulder and the bead. The head of the displacer provided on its outer surface just above its extremity with a profile cam which in the preferred form of the invention rides upon two rigid cam-track surfaces, one being the peripheral edge of the upturned portion of the rim, is moved substantially laterally by the camming action to completely displace the adjacent bead from its shoulder into the drop center of the rim. Only one cycle of operation is necessary for each side of the tire to break the beads and prepare the entire casing for immediate removal.

ERRATUM

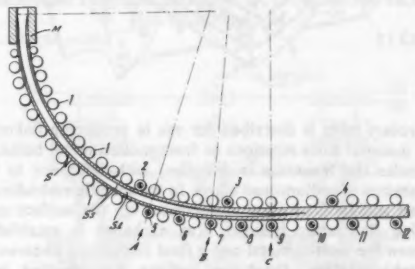
For Class 164—45 see:
Patent No. 3,707,152

3,707,180

METHOD FOR ADVANCING A CONTINUOUSLY CAST INGOT ALONG A CURVED WITHDRAWAL PATH

Gerd Vogt, Strump, Germany, assignor to Mannesmann Aktiengesellschaft, Dusseldorf, Germany

Filed Jan. 20, 1971, Ser. No. 108,003
Claims priority, application Germany, Jan. 29, 1970, P 20 04 763.6
Int. Cl. P22d *11/12*
U.S. Cl. 164—82 **5 Claims**

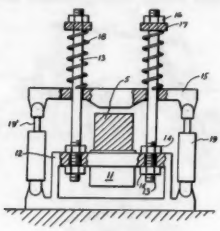


A continuously cast curved ingot is withdrawn from the mold by forces distributed so that one-tenth to one half of the total forces act on the upper side along the inside of the curved withdrawal path, the remaining forces act from below along the outer path.

3,707,181
SAFETY SYSTEM FOR CONTINUOUS CASTING MACHINE

Hans-Dieter Schulz, Duesseldorf, Germany, assignor to Schloemann Aktiengesellschaft, Dusseldorf, Germany

Filed Oct. 19, 1970, Ser. No. 81,886
Claims priority, application Germany, Oct. 22, 1969, P 19 53 094.0
Int. Cl. B22d 11/08, 11/12
U.S. Cl. 164—152 3 Claims

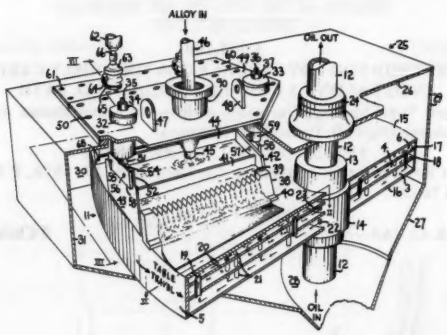


In a continuous casting machine having a curved strand guide, a flexible dummy bar, at least one driven roll, and a fluid pressure system for causing said driven roll to grip and move the dummy bar, a stopping device is located along the path of the dummy bar which is activated by a pressure drop in the fluid pressure system of the driven roll to grip and stop motion of the dummy bar.

3,707,182
FLAKING APPARATUS

Daniel E. Wiley, Corpus Christi; Harmon A. McDougal, Beaumont, both of Tex., and Allan L. Turner, Denver, Colo., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Division of Ser. No. 883,516, Dec. 9, 1969, Pat. No. 3,642,053.
This application July 19, 1971, Ser. No. 163,900
Int. Cl. B22d 11/06
U.S. Cl. 164—276 10 Claims



A rotary table is described for use in producing flakes of solid material from solutions or from molten metal baths. In particular the invention is described with reference to the preparation of sodium-lead alloys. In the specific embodiment molten sodium-lead alloy is deposited on the surface of a rotating flat table. Indirect heat exchange is established between the molten metal and a fluid circulating underneath the table surface. Discharge orifices are provided in a chamber below the table surface at a multiplicity of points across its width. Uniform discharge of heat exchange fluid at all points across the undersurface of the table is accomplished by an equal pressure drop being maintained across all of the orifices.

3,707,183
CONTINUOUS OFFSET LINE CASTING ARRANGEMENT

Luigi Danieli, Buttrio (Udine), Italy

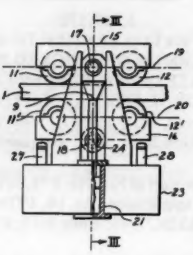
Filed Sept. 23, 1970, Ser. No. 74,588
Int. Cl. B22d 11/10
U.S. Cl. 164—281 3 Claims

An arrangement of the vertical casting lines for a continuous casting system, wherein said casting lines in the ingot moulds are arranged offset to one another with the side casting lines moved back to a larger extent than the inner casting lines. By this arrangement of the casting lines, the tundishes have the tundish nozzles arranged according to a substantially curved line with the tundish wall facing the operators being equally spaced apart from the tundish nozzle axes as a close as possible to said tundish nozzles.

3,707,184
WITHDRAWAL AND STRAIGHTENING APPARATUS FOR CONTINUOUS CASTING

Max Burkhardt, Zurich, Switzerland; Horst Huber, Roselle Park, N.J., and Christian Chateau, Saint-Chamond, France, assignors to Concast AG, Zurich, Switzerland and Concast Incorporated, New York, N.Y.

Filed May 20, 1970, Ser. No. 38,977
Claims priority, application Switzerland, May 20, 1969, 7645/69
Int. Cl. B22d 11/12
U.S. Cl. 164—282 8 Claims



In a withdrawal and straightening apparatus for continuous casting machines, banks of withdrawal and straightening rolls are mounted above and below the casting, the rolls of each bank being mounted in tiltable yokes which adjust themselves to the curvature of the casting and distribute the loads on the rolls. The rolls of the upper bank are adjustable by hydraulic means connected to the yokes to accommodate castings of different thickness.

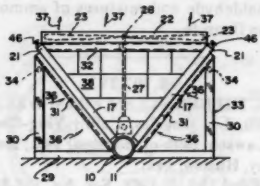
3,707,185
MODULAR AIR COOLED CONDENSER

Arthur B. Modine; Homer D. Huggins, and Neal A. Cook, all of Racine, Wis., assignors to Modine Manufacturing Company

Filed March 25, 1971, Ser. No. 128,005
Int. Cl. F28b 3/00
U.S. Cl. 165—111 9 Claims

A modular air cooled condenser apparatus having an elongated tubular manifold serving as a backbone principal sup-

port for other elements of the apparatus, a plurality of condenser cores supported on the manifold at an angle to the horizontal to provide gravity drainage back into the manifold, a fan shroud and fan supported between the cores, a motor drive structure mounted on the manifold and connected to the fan and a rigid frame interconnecting the manifold, cores and

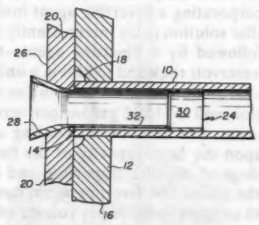


shroud in a self-supporting module unit joinable at the manifold to other such units to provide any desired condensing capacity. Each modular unit is preferably of a size that can be constructed in the factory and shipped as on a flatcar to its destination so as to require a minimum of erection in the field.

3,707,186
COOLING TUBE FERRULE

Eduardo P. Zorrilla, Houston, Tex., and William P. Long, Chester, N.J., assignors to Foster Wheeler Corporation, Livingston, N.J.

Filed Jan. 18, 1971, Ser. No. 107,020
Int. Cl. F28f *19/00*
U.S. Cl. 165—134 **4 Claims**



Erosion due to coke in a heat exchanger which cools hot hydrocarbon gas is reduced. A ferrule is mounted on the inlet end of a cooling tube, the ferrule having a flared inlet end to reduce turbulence and having over most of its length an annular space between the ferrule and the tube to prevent the ferrule from becoming cool enough to induce carbon formation.

3,707,187
FLOODING METHOD USING SALT-INSENSITIVE POLYMERS FOR BETTER MOBILITY CONTROL

Bruce L. Knight, Littleton, Colo., assignor to Marathon Oil Company, Findlay, Ohio

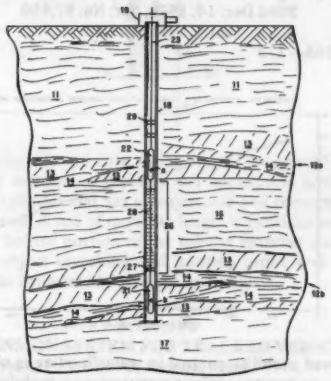
Filed June 25, 1971, Ser. No. 156,937
Int. Cl. E21b *43/22*
U.S. Cl. 166—246 **10 Claims**

Improved flooding of an oil-bearing subterranean reservoir with an aqueous slug containing a salt-sensitive polymer (example of such a polymer is a partially hydrolyzed, high molecular weight polyacrylamide) and a subsequent drive water which, due to the salt content, tends to degrade the back portion of the aqueous polymer slug, is realized by following the aqueous, salt-sensitive polymer slug with a sufficient volume of an aqueous biopolymer slug to "insulate" the salt-sensitive polymer from the drive water. Drive water having salt concentrations above 1,000 ppm (parts per million) of TDS (total dissolved solids) and especially those waters containing above 50 ppm of polyvalent cations, tends to adversely affect the mobility reducing capabilities of a salt-sensitive polymer. More efficient mobility control is obtained by interjecting the biopolymer slug between the salt-sensitive polymer slug and the drive water. Optionally, a miscible or miscible-like slug can precede the salt-sensitive polymer slug.

3,707,188
NON COLLAPSE STEMMING OF CASING SUBJECTED TO EXPLOSIVE EFFECTS

Richard A. Heckman, Castro Valley, Calif., assignor to The United States of America as represented by the United States Atomic Energy Commission

Filed April 27, 1971, Ser. No. 137,922
Int. Cl. E21b *43/26*
U.S. Cl. 166—247 **9 Claims**

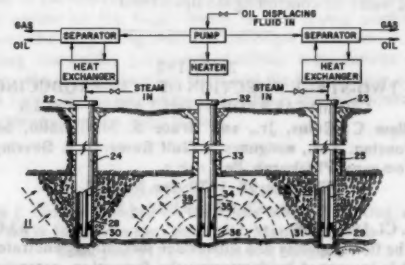


Tubular casing is installed along a formation interval through which open communication is to be preserved or established in proximity to an explosive device, particularly, a nuclear explosive. The casing is then filled, i.e., is stemmed with a fluidic agent having dilatant properties. When subjected to the severe stresses product by detonation of the explosive the dilatant agent is transitorally transformed into a rigid incompressible form which prevents buckling and crushing of the casing. Upon dimination of the stress the agent returns to a fluidic form which may drain or otherwise fugitively depart from the casing providing open communication therethrough.

3,707,189
FLOOD-AIDED HOT FLUID SOAK METHOD FOR PRODUCING HYDROCARBONS

Michael Prats, Houston, Tex., assignor to Shell Oil Company, New York, N.Y.

Continuation-in-part of Ser. No. 827,750, May 26, 1969, abandoned. This application Dec. 16, 1970, Ser. No. 98,938
Int. Cl. E21b *43/24*
U.S. Cl. 166—263 **11 Claims**



Relatively viscous liquid hydrocarbons are produced from a subterranean hydrocarbon reservoir by opening at least one

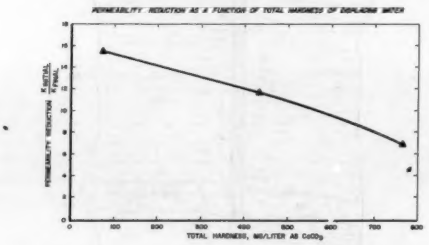
well borehole into fluid communication with the reservoir at least at two spaced locations. A relatively mobile hot fluid, such as steam, is injected through the well borehole and into the earth formation around one of the locations for a period of time sufficient to form a hot zone and thermally mobilize liquid hydrocarbons present in the earth formation. Formation fluids are produced, by backflowing fluid from the hot zone, while a hydrocarbon-displacing fluid is being injected into the earth formation around another of the locations within the reservoir to displace hydrocarbons into the hot zone.

3,707,190

WATERFLOODING BY REGULATING THE TOTAL HARDNESS WITHIN THE DRIVE WATER

John A. Davis, Jr., Littleton, and John S. Rhudy, Denver, both of Colo., assignors to Marathon Oil Company, Findlay, Ohio

Filed Dec. 14, 1970, Ser. No. 97,690
Int. Cl. E21b *43/16*
U.S. Cl. 166—273 **15 Claims**


PERMEABILITY REDUCTION AS A FUNCTION OF TOTAL HARDNESS OF DISPLACING WATER
PERMEABILITY REDUCTION K INITIAL / K FINAL
TOTAL HARDNESS, MG/LITER AS CaCO3

Improved mobility control in waterflooding is obtained by following an aqueous solution containing a mobility reducing agent with water containing a minimum total hardness and thereafter increasing the total hardness of the drive water, preferably to a total hardness characteristic of water conveniently located to be used for the majority of the drive water. The total hardness of the water can be reduced by methods known in the art. Also, the total hardness can be increased, if necessary, by adding salts of Ca^{++}, Mg^{++}, etc. This invention is particularly useful with a miscible or miscible-like flooding agent followed by an aqueous mobility reducing agent (e.g. partially hydrolyzed, high molecular weight polyacrylamide) and this, in turn, followed by a minimum total hardness water and thereafter the total hardness of the water increased.

3,707,191

GEL FLUID WATER FLOODING METHOD

Harry W. Parker, Lubbock, Tex., assignor to Phillips Petroleum Company

Filed May 27, 1970, Ser. No. 41,089
Int. Cl. E21b *43/22*
U.S. Cl. 166—275 **7 Claims**

A method of raising and lowering the injection rate of a gel flood water for controlling the flood front.

3,707,192

TWO-STAGE INJECTION OF ACID-PRODUCING CHEMICALS FOR STIMULATING WELLS

William C. Goins, Jr., and Bruce B. McGlothlin, both of Houston, Tex., assignors to Gulf Research & Development Company, Pittsburgh, Pa.

Filed Dec. 28, 1970, Ser. No. 102,105
Int. Cl. E21b *43/26, 43/27*
U.S. Cl. 166—300 **13 Claims**

The flow capacity of a subsurface formation penetrated by a well is increased by fracturing the formation, extending the fracture from the well outward into the formation, depositing solid particles of a first reactant the faces of the fracture, and displacing a second reactant into the fracture to react with the first reactant. The reaction product of the two reactants is an acid that will attach the formation and thereby increase the width of the fracture. Reactants that can be used are ammonium salts and aldehydes that react to form acids. Preferred reactants for carbonate formations are ammonium chloride and formaldehyde. Preferred reactants for sandstone formations are formaldehyde and mixtures of ammonium chloride and ammonium fluoride.

3,707,193

GAS-STRENGTHENED STEAM FOAM WELL CLEANING

Terry K. Smith, Los Angeles, Calif.; Ying-Chech Chiu, and Jimmie B. Lawson, both of Houston, Tex., assignors to Shell Oil Company, Huston, Tex.

Filed Oct. 1, 1971, Ser. No. 185,815
Int. Cl. E21b *43/20, 43/24*
U.S. Cl. 166—303 **10 Claims**

In cleaning a contaminant-containing conduit, steam is circulated to heat the contaminating materials and a gas-strengthened steam foam is circulated into and out of the contaminant-containing portion of the conduit to entrain and remove heated contaminants.

3,707,194

USE OF DIVERTING AGENTS FOR INJECTION WELL STIMULATION

Marvin A. Svaldi, Morrison, Colo., assignor to Marathon Oil Company, Findlay, Ohio

Filed July 13, 1971, Ser. No. 162,288
Int. Cl. E21b *43/25*
U.S. Cl. 166—305 R **9 Claims**

The injectivity profile of an injection well in fluid communication with an oil-bearing, heterogeneous formation, is improved by incorporating a diverting agent into the front portion of a micellar solution or by intermittently injecting micellar solution followed by a diverting agent—the result is to stimulate the reservoir rock and to obtain a uniform injectivity profile. The total amount of micellar solution useful to stimulate the injection well is 1–500 gallons per vertical foot of oil-bearing formation. The amount of diverting agent necessary will depend upon the heterogeneity of the formation; where intermittent slugs of micellar dispersion and diverting agent are injected, the amount of diverting agent can be from about 0.1 to about 50 or more volumes per volume of injected micellar dispersion. Examples of diverting agents include aqueous and hydrocarbon solutions containing fibrous material, laminated material, glutinous material, or other like materials which tend to "block" the reservoir rock. Preferably, the diverting agent is one that is soluble in water. A third slug can be injected to solubilize the diverting agent and optionally acid can be injected after the micellar solution and diverting agent to increase the injectivity index.

3,707,195

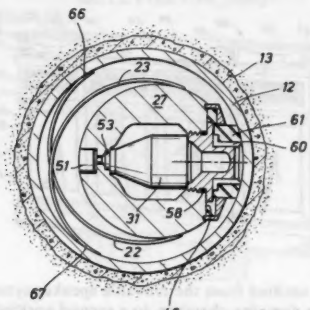
APPARATUS FOR PERFORATING EARTH FORMATIONS

C. P. Lanmon, II, Friendswood, Tex., assignor to Schlumberger Technology Corporation, New York, N.Y.

Division of Ser. No. 38,953, May 20, 1970, Pat. No. 3,630,282.
This application July 14, 1971, Ser. No. 162,469
Int. Cl. E21b *43/116*
U.S. Cl. 175—4.52 **15 Claims**

This application discloses new and improved apparatus for perforating earth formations and then cleaning debris and the like from such perforations. As disclosed herein, the new and improved perforator of the present invention is provided with one or more pairs of like or similar perforating devices operatively arranged for producing perforations in an earth formation which are selectively directed so that each pair of perforations will be in fluid communication with each other. An enclosed low-pressure chamber is coupled to one of the perforating devices in each set and a seal is arranged around the per-

forating axis of this perforating device for at least limiting the direct entrance of well bore fluids into the perforation produced thereby. In this manner, upon operation of each pair of the perforating devices, well bore fluids will be drawn into



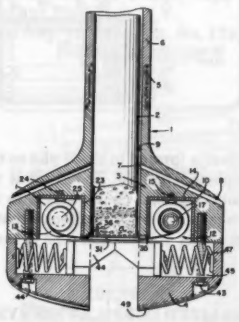
the perforation produced by the other perforating device and be swept through the intercommunicating perforations into the low-pressure chamber for cleaning debris and loose formation materials from the perforations.

3,707,196

SEDIMENT SAMPLE RETRIEVER

William P. Verville, Concord, N.H., assignor to The United States of America as represented by the Secretary of the Army

Filed July 13, 1971, Ser. No. 162,107
Int. Cl. E21b *7/12, 25/00*
U.S. Cl. 175—5 **10 Claims**



A subaqueous sediment sample retriever head is affixed to the lower end of a continuous casing, which is positioned about a drill rod string and lowered onto a sampler tube, contiguous with drill rod string. The retriever head houses in oppositely disposed cavities to a central bore, a pair of spools which store and actuate a flexible sealing slide respectively, and two pairs of spring actuated locking lugs which actuate simultaneously with the slide when the retriever head reaches the sampler tube bottom. A sleeve like follower device guides the retriever head onto the sampler tube and retains the sealing mechanism in an open position during mounting. The retriever head is advanced over the sampler by its own weight in conjunction with hydraulic jetting action.

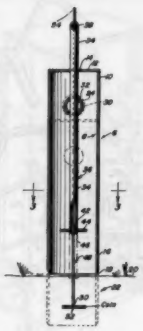
3,707,197

GROUND CORE REMOVING TOOL

David J. Walesch, 1510 Sharon Drive, and Allan A. Mengler, P.O. Box 753, both of Carson City, Nev.

Filed Oct. 2, 1970, Ser. No. 77,496
Int. Cl. G01n *1/00*
U.S. Cl. 175—20 **5 Claims**

A manually usable turf and ground core cutting, extracting and replacing tool for use by exploratory-minded enthusiasts and collectors of buried metal coins, objects and artifacts having monetary or intrinsic value, as the case may be. It comprises a vertically elongated cylinder whose upper apertured end is provided with suitably convenient handle means and whose lower open end is provided with an annular cutting edge which can be pressed through the turf and forcibly em-



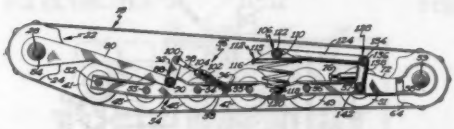
bedded in the selected core taking area of the ground. A tubular plunger member is slidingly and operatively mounted on and in the cylinder and has a projectable and retractable core engaging head. A rod of requisite length is fitted for reciprocation in the hollow portion of the tubular member and is used (1) as an object searching and locating probe and (2) as a guide for the cylinder and plunger assembly.

3,707,198

SUSPENSION SYSTEM FOR TRACKED VEHICLES

Neil W. Pierson, P.O. Box 98, Roseau, Minn.

Filed Nov. 27, 1970, Ser. No. 93,047
Int. Cl. B62m *27/02*
U.S. Cl. 180—5 R **11 Claims**



A new suspension system for tracked vehicles is disclosed by means of its application to a snowmobile including body, motor, bogie frame, track mounted on the bogie frame, and drive mechanism connected between the bogie frame and the track to propel the snowmobile. A preferred embodiment of the suspension system of the present invention as applied to such snowmobiles includes a pair of front linkage arms pivotally and symmetrically connected between a drive shaft of the drive mechanism and the front portion of the bogie frame, a pair of upstanding arms fixedly connected to the front linkage arms and further connected to the bogie frame by an adjustable spring, a body supporting shaft extending from side to side of the snowmobile body over the approximate longitudinal center of the bogie frame, a coil spring positioned between the supporting shaft and the bogie frame, and double pivoting rearwardly positioned stabilizer arms further connecting the body supporting shaft and the rear portion of the bogie frame. Track tightening apparatus is also positioned adjacent the rear of the bogie frame.

3,707,199

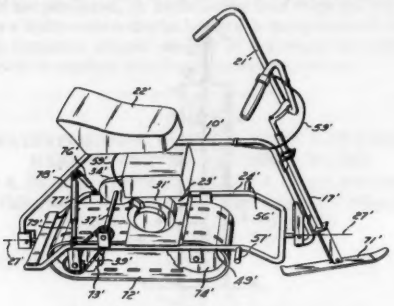
RECREATIONAL VEHICLE

Anton J. Gerich; Howard W. Bletz, and Merle P. Wilfing, all of c/o BGW Industries Inc., Box 1683, Mansfield, Ohio

Filed Jan. 11, 1971, Ser. No. 105,384
Int. Cl. B62m *27/00*
U.S. Cl. 180—5 **4 Claims**

Recreational vehicles are disclosed which are particularly

suitable on snow or ice. The vehicles include a main frame on which the rider sits and a power unit connected to the main frame for pivotal movement about a longitudinal axis. Therefore, the rider may remain upright when passing over laterally sloping terrain or may lean into turns. Footrests are provided



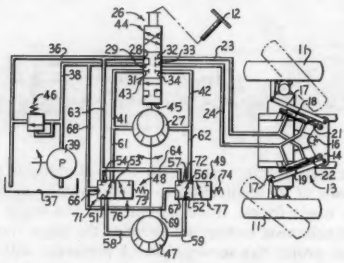
on each side of the longitudinal axis to provide rider stability without requiring the rider to place his feet on the ground. In one embodiment wheels are driven directly by the engine without an intermediate clutch, and the traction of the wheels is controlled by the operator's foot pressure on the power unit frame.

3,707,200

DUAL METER UNIT STEERING CONTROL

Glen S. Comer, Jr., Peoria, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed Dec. 28, 1970, Ser. No. 101,989
Int. Cl. B62d *5/06*
U.S. Cl. 180—79.2 R **3 Claims**



A hydraulic power steering control wherein a second fluid meter unit shaft driven from a first fluid meter unit is employed to add to the fluid displacement of the first unit used to control the volume of fluid delivered from a pump to the control valve of a power steering unit during normal power steering operation. Means are provided to render the second meter unit inoperative in response to pump failure such that the relatively small displacement of the first meter unit alone provides a more favorable mechanical advantage for manual steering of a vehicle in an emergency condition.

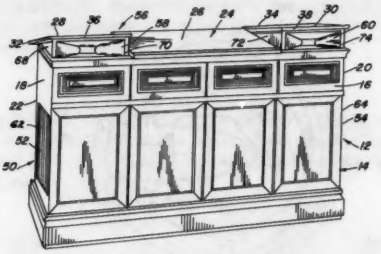
3,707,201

CABINET-MOUNTED SPEAKER SYSTEM

Daniel J. Domin, Deerfield, and Thomas E. Duvall, Morton Grove, both of Ill., assignors to TMA Company, Wheeling, Ill.

Filed Dec. 31, 1970, Ser. No. 103,109
Int. Cl. G10k *13/00*; H04r *1/28*
U.S. Cl. 181—31 B **11 Claims**

A cabinet-mounted speaker system, wherein the directivity and intensity of the middle to upper frequency range components of the output signal may be selectively reinforced, comprises a fixed speaker system mounted in the cabinet and a movable speaker system that is movable from a first position in a damping chamber in the cabinet, wherein substantially all



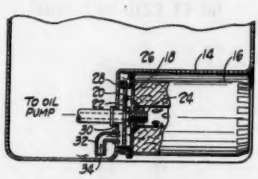
of the sound emitted from the movable speaker system is absorbed by the damping chamber, to a second position outside the damping chamber, wherein substantially all of the sound emitted from the speaker is transmitted from the cabinet.

3,707,202

OIL FILTER IN CRANKCASE PAN

Roy H. Dixon, 17950 Holland Road, Brookpark, Ohio

Filed July 31, 1970, Ser. No. 60,058
Int. Cl. F16n *39/06*
U.S. Cl. 184—6.24 **3 Claims**



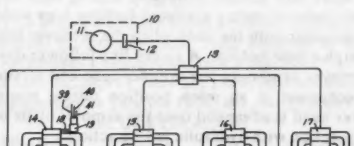
An external recess is formed in an oil pan so that an oil filter may be easily replaced therein. The filter is threadably engaged on a conduit. A gasket cooperates with the filter housing and an inlet means in the pan wall such that the oil travels from the pan to the filter and conduit then to the oil pump.

3,707,203

CENTRALIZED LUBRICATION SYSTEM

Robert D. Roberts, Streetsboro, Ohio, assignor to Houdaille Industries, Inc., Buffalo, N.Y.

Filed March 29, 1971, Ser. No. 128,707
Int. Cl. F16n *29/00*
U.S. Cl. 184—6.4 **5 Claims**



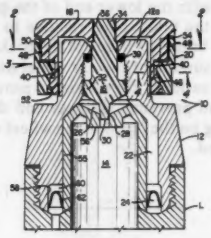
A cyclic type lubrication system for lubricating an intermittently operated device having operating cycles of varying time durations. The system includes a control and monitoring mechanism for initiating a lubrication cycle after the device has been operated through a predetermined number of operating cycles and for providing an indication whether the lubricating cycle has been completed during a predetermined number of operating cycles of the device after initiation of the lubrication cycle.

3,707,204

LUBRICATOR SIGHT FEED DOME

Claude J. Dussardier, Littleton, Colo., assignor to C. A. Norgren Co., Littleton, Colo.

Filed Sept. 13, 1971, Ser. No. 179,853
Int. Cl. F16n 7/34, 29/02
U.S. Cl. 184—55 A 13 Claims



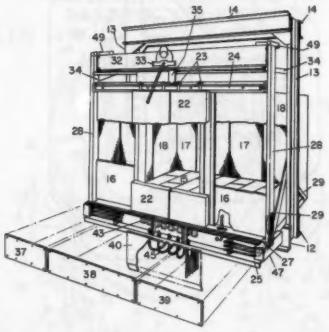
Air line lubricator with sight dome drip feed, characterized by a metering needle valve, operated by a rotatable control knob having a locking ring which may be moved axially between locked and unlocked positions. When in locked position, it may be secured by a seal wire to prevent tampering with the metering adjustment. Replaceable inserts may be provided to select the size of oil drops which are delivered to an air stream.

3,707,205

ELEVATOR CAR WITH ELEMENTS COMBINING BOTH STRUCTURAL AND WIRING HOUSING FUNCTIONS

George William Gibson, Old Bridge, N.J., assignor to Otis Elevator Company, New York, N.Y.

Filed Aug. 31, 1971, Ser. No. 176,634
Int. Cl. B66b 9/00
U.S. Cl. 187—1 R 5 Claims



An elevator car in which the junction box and wiring raceways for the electrical conductors are integral with horizontal and vertical structural members.

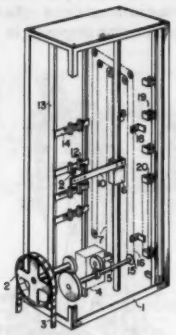
3,707,206

ELEVATOR CONTROL APPARATUS

Akinori Watanabe; Yoshinori Takahashi; Seinosuke Yahiro, and Kikuo Watanabe, all of Katsuta, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed April 20, 1971, Ser. No. 135,652
Claims priority, application Japan, April 20, 1970, 45/32998
Int. Cl. B66b 1/52
U.S. Cl. 187—29 R 13 Claims

An elevator control apparatus having a tracing device simulating the movement of an elevator cage at a certain reduced speed ratio, a preceding device detecting a target floor to determine the running mode of the elevator cage, a chain moved synchronously with the movement of the elevator cage at a smaller reduced speed ratio than said tracing means, mark plates provided on the chain at intervals proportional to each



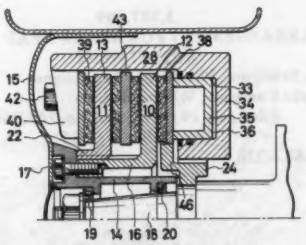
floor interval, a detector for detecting the mark plates in order to produce signals according to the positions of the elevator cage, and a pattern generator for generating a deceleration pattern by means of relays excited through the output of the detectors when the elevator cage approaches the target floor detected by the preceding device.

3,707,207

SPOT DISC BRAKES FOR VEHICLES

Toshio Kondo, Hekikai-gun, Japan, assignor to Aisin Seiki Kabushiki Kaisha, Kariya, Aichi Pref., Japan

Filed Sept. 4, 1970, Ser. No. 69,725
Claims priority, application Japan, Sept. 6, 1969, 44/84676
Int. Cl. F16d 55/36
U.S. Cl. 188—71.5 3 Claims



Spot disc brakes particularly for use on heavy vehicles comprising plural brake discs, wherein one brake disc is securely mounted on a rotatable sleeve and is provided with a plurality of axially extended splines thereon, while the other brake disc is mounted slidably in its axial direction on and along the splines of said secured brake disc.

3,707,208

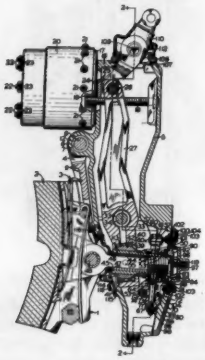
SLACK ADJUSTER MECHANISM FOR TREAD BRAKE APPARATUS

Allen W. Kyllonen, Pittsburgh, Pa., assignor to Westinghouse Air Brake Company, Wilmerding, Pa.

Filed July 19, 1971, Ser. No. 163,937
Int. Cl. F16d 65/56
U.S. Cl. 188—202 10 Claims

This invention relates to a slack adjuster mechanism for a tread brake apparatus used for braking a railway car wheel. A fluid pressure operated piston transmits a braking force to a brake shoe through an actuating lever and a brake rod which comprises a screw and a nut about which is disposed a slack

adjuster mechanism that embodies a ratchet secured to the nut and a pawl that is operated by a linkage that includes a bell-crank lever that is pivotally mounted at the junction of its arcuate-shaped arm and bifurcated arm on a slack adjuster stem driver carried by an operating stem that constitutes one member of this linkage. The arcuate-shaped arm of the bell-crank lever abuts a roller carried by a stationary bracket, and one end of the bifurcated arm carries a roller that abuts a stop formed on a slack adjuster ring disposed in surrounding rela-



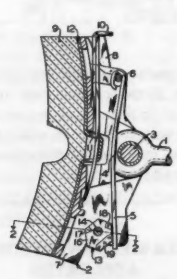
tion to the brake rod and anchored to the brake actuating lever to be movable therewith so that this movable stop constitutes a fulcrum about which the bell-crank lever is rocked as the bracket roller rolls along the arcuate surface of the arcuate-shaped arm when a brake application is effected to cause downward movement of the junction of the lever arms thereby, via the stem driver, the operating stem, which extends through the bifurcated arm, and other members of the linkage actuating the pawl and ratchet to take up slack upon effecting a brake release if the shoe clearance is excessive.

3,707,209

CAM ARRANGEMENT FOR BRAKE HEAD POSITION ADJUSTMENT

Robert J. Bridigum, Pittsburgh, Pa., assignor to Westinghouse Air Brake Company, Wilmerding, Pa.

Filed July 19, 1971, Ser. No. 163,960
Int. Cl. B61h *13/38*
U.S. Cl. 188—220.6 **5 Claims**



This invention relates to a cam arrangement for varying the angular position of the braking surface of a brake assembly brake shoe relative to the tread surface of a railway car wheel.

A brake head having a brake shoe secured to one side by a brake shoe key has extending from its opposite side a pair of parallel spaced-apart flanges between which is disposed the end of a brake rod that is pivotally connected to the brake head by a pin, the opposite ends of which are anchored in coaxial bores provided in these flanges.

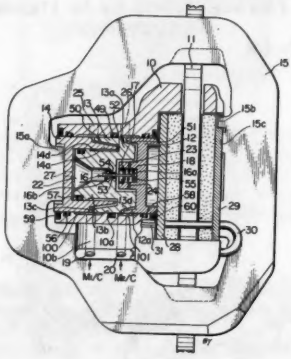
The pivoted end of the brake rod is provided with a flat surface that abuts intermediate its ends a flat leaf-type brake head positioning spring that has one end anchored to a pin, the opposite ends of which are also anchored in coaxial bores provided in these flanges. A third pin, having its opposite ends anchored in these flanges, has eccentrically and rotatably mounted thereon a polyhedron cam. Manual rotation of this cam by means of a wrench brings one or another face of the cam into contact with the lower end of the positioning spring to thereby rotate the brake head relative to the brake rod to adjust the arcuate braking surface of the brake shoe relative to the arcuate tread surface of the car wheel until the centers of these two arcuate surfaces are coaxial to provide even wear of the brake shoe and prevent the upper end thereof from contacting or dragging on the tread of the wheel when a brake application is released.

3,707,210

WHEEL BRAKE CYLINDER ASSEMBLY FOR A HYDRAULIC TWIN BRAKE SYSTEM

Mizuo Nyunoya, and Masatada Yokoi, both of Kariya, Japan, assignors to Aisin Seiki Kabushiki Kaisha, Kariya, Aichi Pref., Japan

Filed Oct. 27, 1970, Ser. No. 84,291
Claims priority, application Japan, Oct. 27, 1969, 44/85930; Dec. 19, 1969, 44/102652
Int. Cl. B60t *11/00*
U.S. Cl. 188—345 **6 Claims**



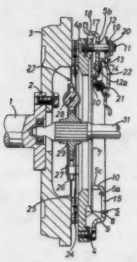
A wheel cylinder in a braking system is provided with first and second pistons slidable therein and protruding from opposite ends to actuate the brake elements. An intermediate piston is slidably disposed in the cylinder between the first and second pistons to define first and second fluid pressure chambers disposed in communication with a high pressure system and low pressure system respectively. A third pressure chamber is formed between the intermediate piston and the first piston. A valve in the intermediate piston provides communication between the third pressure chamber and one of the first and second pressure chambers and is normally open when both pressure systems are operative. Upon failure of the high pressure system movement of the intermediate piston in the opposite direction by the low pressure system will close the valve thereby trapping the fluid therein to provide a fluid link between the intermediate piston and the first piston to prevent an increase in stroke when the low pressure system takes over.

3,707,211

FRICTION DISC CLUTCH FOR VEHICLES

Syozo Kuno, Kariya, Japan, assignor to Aisin Seiki Kabushiki Kaisha, Kariya-shi, Japan

Filed Dec. 18, 1970, Ser. No. 99,387
Claims priority, application Japan, Dec. 20, 1969, 44/102781
Int. Cl. F16d 13/60
U.S. Cl. 192—113 A 7 Claims



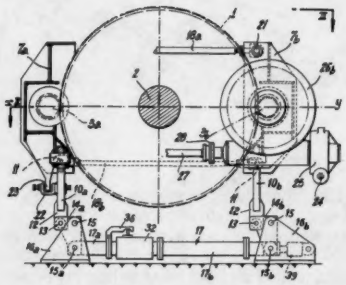
A motor vehicle friction clutch of the type which includes an output shaft, a flywheel secured to a drive shaft, a clutch cover connected to the flywheel, a pressure plate, a dish spring interposed between the clutch cover and the pressure plate, and a clutch disc. Cooling air passages for cooling the dish spring and the pressure plate are provided around both sides of the dish spring by a number of ventilating recesses made on the annular inner edge of the clutch cover and a number of projections made on the annular circumferential edge of the pressure plate.

3,707,212

DEVICE FOR TRANSMITTING MOTION

Francois Durand, 108 Boulevard Carnot, Le Vesinet, France

Filed June 7, 1971, Ser. No. 150,455
Int. Cl. F16p 3/00; F16h 57/00
U.S. Cl. 192—150 3 Claims



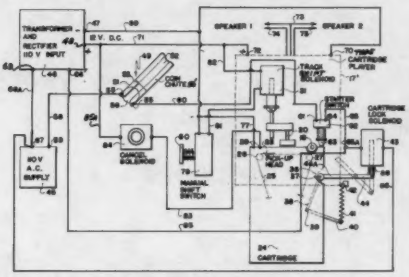
In this device for transmitting motion to a large gear two driving pinions are in constant meshing engagement therewith and disposed at spaced intervals; these pinions are rotatably mounted on separate supports carrying a roller engaging a race formed concentrically on said gear, said supports being interconnected by a pair of coupling rods pivoted to a pair of retaining members each pivotally mounted about an axis parallel to the axis of the driven gear and interconnected in turn by a link of telescopic nature, with resilient means interconnecting in turn the sections of this link. One section of said interconnecting link is adapted to actuate a switch for opening the energizing circuit of the motor driving said pinions when the relative movements accomplished by these sections exceed a predetermined limit.

3,707,213

COIN OPERATED MANUALLY SELECTIVE TAPE CARTRIDGE PLAYER

Frank J. Larre, Box 452, St. Walburg, Saskatchewan, Canada

Filed March 1, 1971, Ser. No. 119,458
Int. Cl. G07f 5/10
U.S. Cl. 194—6 18 Claims



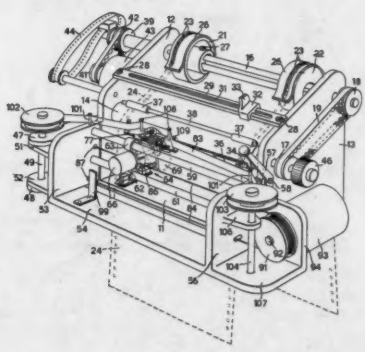
A cartridge magazine permits manual selection of a cartridge which is then engaged into the player mechanism. The mechanism is energized by the insertion of a coin and de-energized by the track shift conductive strip of the tape. This deenergizing also ejects the coin to the coin vault in the machine.

3,707,214

SERIAL PRINTING DEVICE

Gian Luigi Ponzano, Ivrea, Italy, assignor to Ing. C. Olivetti & C., S.p.A., Ivrea (Torino), Italy

Filed May 18, 1970, Ser. No. 38,208
Claims priority, application Italy, May 23, 1969, 51959 A/69
Int. Cl. B41j 1/22
U.S. Cl. 197—53 14 Claims



A serial printing device is provided with a rotatable disc having a set of flexible tongues each one engageable by a hammer to strike against the paper. The disc is rotated by a stepping motor controlled by electronic circuits to bring the selected type on the printing point through the shortest path. The disc is also mounted on a carriage which is moved by another stepping motor controlled by an electronic circuit.

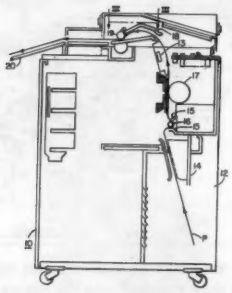
The carriage and the relevant guides are mounted on a frame pivotable on a vertical shaft mounting one of the ribbon spools, in order to remove the disc from the carriage and to facilitate the insertion of fresh paper.

3,707,215

WEB TENSIONER FOR HIGH SPEED PRINTER

Stanley G. Familant, Framingham, Mass., assignor to Honeywell Inc., Minneapolis, Minn.

Filed July 6, 1970, Ser. No. 52,224
Int. Cl. B41j 15/16
U.S. Cl. 197—133 P 14 Claims



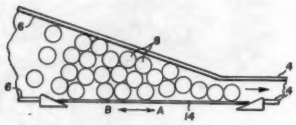
A high speed printer for use with data processing equipment wherein the printing is produced by feeding a paper web past a ribbon and rotating type roll, and striking the web against the type roll and ribbon with a plurality of hammers to produce the printed line. The web is fed in a path past the type roll by a tractor feed arrangement disposed after the type roll, and tensioning means is provided before the type roll to maintain tension in the web being drawn past the print station. A second tensioning means in the form of a pair of tensioning rolls is provided along the paper path after the tractor arrangement to produce an opposite or counter driving force to that force produced by the type roll action on the web during printing.

3,707,216

CONVEYOR JOGGING MECHANISM

Anthony R. Peres, Bristol, N.Y., assignor to Peres Electronic Machinery, Inc., Rochester, N.Y.

Filed Feb. 26, 1971, Ser. No. 119,194
Int. Cl. B65g 47/26
U.S. Cl. 198—30 9 Claims



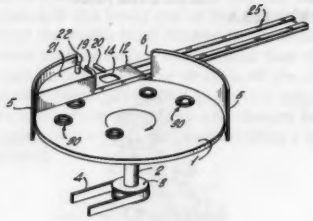
A jogging mechanism for a conveyor or the like for preventing the jamming or bridging of articles on the conveyor. The jogging mechanism comprises an article-engaging wall member on the conveyor and a mechanism for simultaneously moving the wall member in two different directions. The moving mechanism comprises a reciprocating mechanism for moving the wall member back and forth substantially along a rectilinear path, and structure engageable by the ends of the wall member during reciprocal movement of the wall member along the rectilinear path, the structure imparting movement to the member in a direction transverse to the rectilinear direction.

3,707,217

METHOD AND APPARATUS FOR FEEDING CLOSURES

Jack Z. Sharbon, Linden, N.J., assignor to American Flange & Manufacturing Co., Inc., New York, N.Y.

Filed Sept. 8, 1970, Ser. No. 70,213
Int. Cl. B65g 47/24
U.S. Cl. 198—33 AA 10 Claims



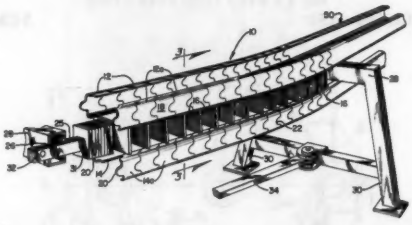
A method and apparatus for feeding circular closure seals properly oriented with their respective interior surfaces facing in the same direction. Randomly oriented closure seals are deposited on a rotating disc and fed into a tangentially directed exit chute partially oriented with their respective central axes in a vertical plane. As the partially oriented closure seals are fed through the exit chute seals having their interior surfaces facing downwardly are deflected back onto the rotating disc and seals having their interior surfaces facing upwardly allowed to pass through the exit chute.

3,707,218

CONVEYOR APPARATUS

Mackey M. Payne, 7300 W. Radcliff, Littleton, Colo., and John S. Harper, Jr., 2853 S. Krameria, Denver, Colo.

Filed Oct. 26, 1970, Ser. No. 83,697
Int. Cl. B65g 41/00
U.S. Cl. 198—109 11 Claims



An endless belt conveyor section for use with an endless belt of a type constructed to permit it to move in a curved path, characterized by guideways having articulated sections along which spaced belt carriers move along upper and lower runs, the articulated sections being adjustable to provide various curved paths of movement for the belt.

3,707,219

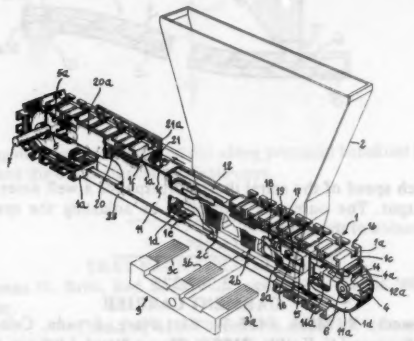
CONVEYOR DEVICE HAVING CONTAINERS FOR STORING AND ASSEMBLING OVERLYING LAYERED SETS OF SIDE BY SIDE ARRANGED CIGARETTES FOR PACKING UP THEREOF AS PACKETS IN CIGARETTE PACKAGING MACHINES

Ariosoto Seragnoli, Via Bellinzona 31, Bologna, Italy

Filed March 19, 1971, Ser. No. 125,936
Claims priority, application Italy, Nov. 2, 1970, 3604 A/70
Int. Cl. B65g 15/00
U.S. Cl. 198—131 1 Claim

A conveyor device having cigarette storing containers wherein cigarettes are arranged side by side at a plurality of

supply stations for assembling overlying layered sets and packet packing up in cigarette packaging machines, characterized by comprising a belt element having one of its faces provided with transverse teeth longitudinally arranged throughout the belt length, said toothed belt element having an elongated looped configuration with horizontal runs about idle gears, wherein said transverse toothing is internally of said loop so as to mesh in a drive belt fashion with the toothing of



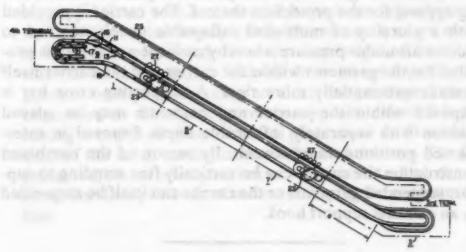
said idle gears and having attached to the face opposite the transverse toothing and externally of the loop said cigarette set storing and assembling containers, said toothed belt element also being of a substantially inextensible material having a resiliently yieldable structure; protective fairing means being provided for a boxlike protection of the zone within the loop as defined by said toothed belt element and respective idle gears; and guide means being also provided for guiding said toothed belt element along said horizontal runs.

3,707,220

MODULAR PASSENGER CONVEYOR CONSTRUCTION

Henry Boltrek, Freeport, N.Y., and Joseph K. Kraft, Verona, N.J., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Nov. 23, 1970, Ser. No. 91,846
Int. Cl. B65g *15/60*; B66b *9/12*
U.S. Cl. 198—16 **20 Claims**



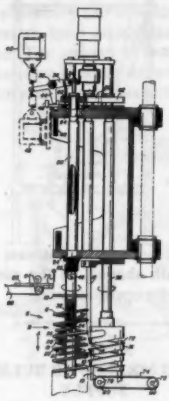
A passenger conveyor is assembled from standard modular units which may be combined in the required numbers to fit any installation. The modular units for a moving stairway are fabricated with all of the components precisely aligned with respect to the tracks which guide the steps so that when the units are joined in the field no adjustment of the tracks is required. Standardized modular drive units are inserted into selected modules in accordance with the requirements of the particular installation.

3,707,221

ARTICLE DIVERTING MECHANISM

James C. Foote, Jr., York, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed March 1, 1971, Ser. No. 120,011
Int. Cl. B65g *47/26*
U.S. Cl. 198—31 AA **23 Claims**



An article diverting mechanism for an article transporting device comprising in one embodiment a helical diverting spring concentrically mounted within a helical transporting coil that transports articles along one path, the diverting spring being movable between a normal inactive position in which it has no effect on the transported article, and a diverting position in which the diverting spring overrides the transporting coil and initially transports an article along one path, and then diverts the article along a different path. When the diverting spring is in its inactive position, transport of articles along the different path is prevented by spaced apart blocking flanges of the same pitch as the transporting coil and rotatable or movable in register or in phase therewith. When the diverting spring is in its diverting position, its pitch is somewhat less than the pitch of the transporting coil and blocking flange. Accordingly, the motion of the transported article is retarded somewhat, and the article ultimately passes through the space between the blocking flanges. In another embodiment of the invention, double transporting screw threads are used in which the lead ends of the threads are angularly spaced apart substantially 180°. The trailing end of one of the threads is interposed between the corresponding convolutions of the other thread and axially located adjacent to the blocking flanges. One of the threads transports articles along an axial path, transport in a lateral direction being blocked by the aforementioned spaced apart blocking flanges of the same pitch as the one thread. The other thread transports articles along the axial path, and then in a lateral direction through the space between adjacent blocking flanges.

3,707,222

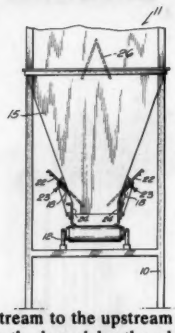
HOPPER WITH SLIDE PLATES

Nelson Hartley, Towson, Md., assignor to Hartley Controls Corporation, Neenah, Wis.

Filed Feb. 25, 1971, Ser. No. 118,758
Int. Cl. B65g *47/18*
U.S. Cl. 198—57 **6 Claims**

A hopper for granular material is superposed over a belt conveyor. The hopper has side walls leading toward a discharge mouth opening onto the belt. The hopper side walls are provided with a longitudinal series of paired slidable plates extending through the side walls and toward the discharge

mouth to shape the flow path of hopper contents intercepted by the plates. A preferred arrangement is to dispose the inner edges of the plates progressively closer to the centerline of the

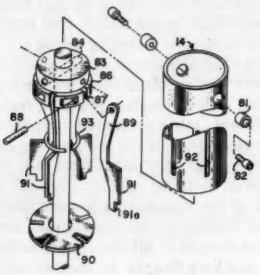


belt from the downstream to the upstream end of the hopper, whereby the flow path shaped by the plates is wider at its downstream end than its upstream end.

3,707,223
ANTI-BRIDGING MEANS FOR BULK FRUIT FEED SUPPLY

Earl R. Anderson, Los Gatos, Calif., assignor to Brex Corp., Trustee, Los Gatos, Calif.

Filed Sept. 18, 1970, Ser. No. 73,419
Int. Cl. B65g *15/00*
U.S. Cl. 198—185 **5 Claims**



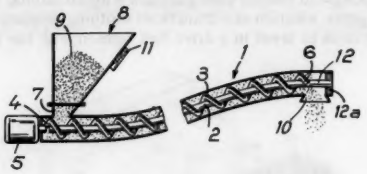
A fruit feed system comprising a bulk supply conveyor for rollable fruit articles from which fruit is fed through a side discharge opening past a bridge preventing means to guard against fruit bridging across and blocking the opening. Anti-bridging rolls are provided at either side of the opening for projecting article feeding elements to active position anytime bridging begins.

3,707,224
CONVEYOR DEVICE FOR PULVERIZED, GRANULAR, FIBROUS OR FLUID PRODUCTS

Blaise B. Rastoin, 42, Avenue de la Panouse, Le Cabot, Marseille, France

Filed Oct. 27, 1970, Ser. No. 84,305
Claims priority, application France, Nov. 5, 1969, 6938598; March 16, 1970, 7009351; Nov. 5, 1969, 6938599
Int. Cl. B65g *33/00*
U.S. Cl. 198—213 **1 Claim**

This invention relates to a conveying device for conveying pulverized, granular, fibrous or fluid materials, composed of a fixed cylindrical tube, a helical conveying element and a cylindrical central core. The conveying spiral occupies substantially all the space between the tube and the central core. To

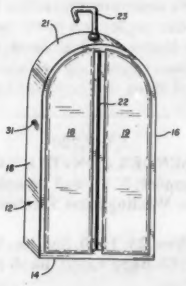


each speed of the spiral there corresponds a well determined output. The output is controlled by adjusting the speed of rotation of the spiral.

3,707,225
GARMENT CARRIER

Timothy R. Miles, 4455 W. 61st Place, Arvada, Colo., and Raymond C. Knittle, 7152 S. Cherry Street, Littleton, Colo.

Filed July 1, 1970, Ser. No. 51,430
Int. Cl. B65d *85/18*
U.S. Cl. 206—7 K **6 Claims**



A garment bag or carrier adapted to receive items of wearing apparel for the protection thereof. The carrier is provided with a plurality of multi-wall inflateable panels adapted to receive air under pressure whereby resilient protection is provided for the garments within the carrier and the carrier itself is made substantially more rigid. A supporting cross bar is disposed within the carrier and garments may be placed thereon with separately inflateable liners disposed in interspersed positions therebetween. By reason of the combined construction the carrier can be vertically free standing to support suspended garments or the carrier can itself be suspended by an external support hook.

3,707,226
COVER CAPS WITH PEGS FOR INSERTING IN A SERIES OF HOLES

Josef Wippermann, Kohlstadt uber Paderborn, Germany, assignor to Richard Heinze, Herford/Westphalia, Germany

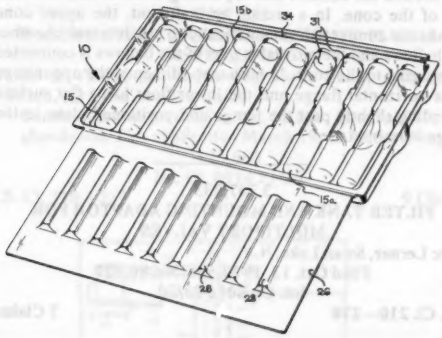
Filed Jan. 29, 1970, Ser. No. 6,683
Claims priority, application Germany, July 11, 1969, P 19 35 247.7
Int. Cl. B65d *83/00*
U.S. Cl. 206—56 DF **1 Claim**

Improved integral strip of pegs with cover caps for furniture production and mounting. A plurality of such pegs in predetermined distances from one another are supported by a

common integral strip and can be inserted in a row of holes at the surface of the furniture by striking over the strip, the latter

being disposed to be broken out along prepared breakout lines around the circumferences of said caps.

3,707,227
TRAY PACKAGE FOR TUBES
Thomas M. Britt, Red Bank, N.J., assignor to Owens-Illinois, Inc.
Filed July 6, 1970, Ser. No. 52,303
Int. Cl. B65d 71/00
U.S. Cl. 206—65 R **6 Claims**

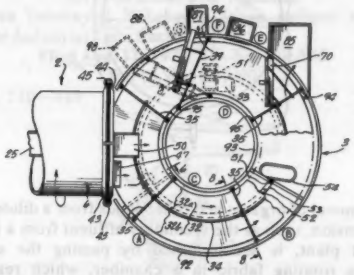


A tray formed from a sheet of thermoplastic material is provided for holding culture tubes, test tubes, or like articles. The tray is provided with a contoured bottom having side and end wall portions extending upwardly therefrom. A cover member is integrally connected from the top edge of one of the sidewall members and is foldable from an open position to a position overlying the tubes to close the package. Integrally connected to the top edge of the opposite sidewall is a flap having a series of protrusions or plugs sized to fit within the ends of the tubes resting in the bottom of the tray. The flap is foldable from an open position to a position at which the plugs fit within the open ends of tubes resting on the contoured bottom.

3,707,228
METHOD AND APPARATUS FOR CLASSIFYING ARTICLES
Lucas J. Conrad, Winston-Salem, N.C., assignor to R. J. Reynolds Tobacco Company, Winston-Salem, N.C.
Filed April 1, 1970, Ser. No. 24,710
Int. Cl. B07c 7/04
U.S. Cl. 209—124 **10 Claims**

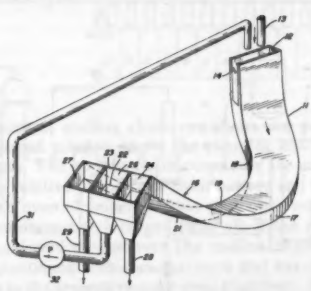
Apparatus for separating meat and bones including: (1) a disuniter unit which separates the meat from the bones to which it is clinging and discharges a mixture of meat pieces and bones; (2) a separator which receives the mixture of meat pieces and bones and discharges through different outlets a stream of meat pieces and a stream of bones; (3) and an inspection table onto which the discharged streams of meat pieces and bones flow, and where any erroneously sorted meat pieces and bones are manually reclassified.

The inspection and classifying table comprises an annular deck rotatably mounted on a circular supporting frame located entirely under the deck. A motor on the frame continuously rotates the deck. A divider wall is supported above the deck at the middle of its annulus and rests on the deck surface. The wall is stationary and extends 270° around the deck. The wall separates an inner classification area from an outer classification area. The stream of bones is deposited on the outer classification area and the stream of meat pieces on the inner classification area. Operators both inside and outside the



annular deck transfer misclassified bones to the outer area and misclassified meat pieces to the inner area. At the downstream end of the divider, a scraper diverts all bones remaining in the outer classification area into a bone receiving bin. In the open deck area between the ends of the wall, the meat pieces are spread across the entire deck area and are removed manually by operators stationed at the outside of the table and deposited in suitable receptacles. As the table approaches the upstream end of the divider wall it encounters another scraper which restores all pieces remaining on the deck to the inner classification area. Thus, all meat pieces passing from the inspection table to the meat receptacles are individually inspected and transferred by hand, minimizing the possibility of the inclusion of a bone piece in the separated meat pieces.

3,707,229
SOLID PARTICLES SEPARATION
Thomas E. Holm, Schiller Park, Ill., assignor to Herbert K. Holm, a part interest
Filed Feb. 16, 1971, Ser. No. 115,640
Int. Cl. B03b 3/30
U.S. Cl. 209—157 **11 Claims**



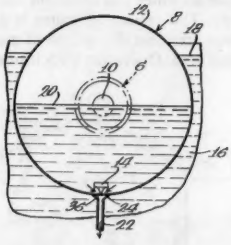
Apparatus and method are provided for the separation of solid particles of different weights in a liquid suspension. The suspension is flowed upwardly in a wide confined stream of shallow depth over an inclined surface having a greater inclination at one side thereof than at the other. The heavier particles move toward the side of the stream having the lesser inclination. In a preferred embodiment, the confined stream follows a curvilinear path and the greater inclination of the inclined surface is adjacent the outer edge of the curved path.

3,707,230

METHOD AND APPARATUS FOR ULTRASONICALLY CLARIFYING LIQUID

Roger Davidson, Arlington Heights, Ill., assignor to FMC Corporation

Filed Aug. 20, 1970, Ser. No. 65,621
Int. Cl. B01d 35/20
U.S. Cl. 210—77 3 Claims



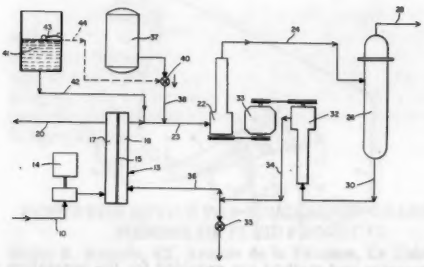
The removal of organic and other solids from a dilute aqueous suspension, such as the secondary effluent from a sewage treatment plant, is accomplished by passing the effluent through a rotating fabric in a chamber, which results in depositing solids on the fabric that serves as a filter. Located within the chamber and disposed immediately adjacent the filter are ultrasonic transducers that function to remove the solids from the filter by setting up vibrations. The solids so removed are directed through a solids discharge pipe positioned adjacent the transducers. The transducer can be located in a number of positions within the chamber outside the drum, such as (1) below the level of the contaminated stream, but above the level of the clarified liquid and (2) below the liquid level of the clarified stream, or inside the drum. In the latter two positions, clarified liquid may move outwardly to assist in carrying away the solids removed from the screen.

3,707,231

TWO-STAGE FLUID TREATMENT SYSTEM

William E. Bradley, New Hope, Pa., assignor to Puredesal, Inc., Levittown, Pa.

Filed Jan. 25, 1971, Ser. No. 109,476
Int. Cl. B01d 31/00
U.S. Cl. 210—98 16 Claims



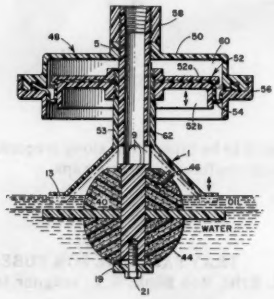
Liquid purification is accomplished by adjusting osmotic pressure using two semi-permeable membranes and an intermediate fluid circulated between the two membranes. One of the membranes is operated as a direct absorption membrane at low pressure, whereas reverse osmosis is accomplished at the other membrane under high pressure.

3,707,232

SKIMMERS FOR POLLUTION CONTROL DEVICE

John W. Harrington, 7123 Merrimac Drive, and Edward G. Milne, 7115 Merrimac Drive, both of McClean, Va.

Filed Oct. 20, 1970, Ser. No. 82,526
Int. Cl. C02b 9/02
U.S. Cl. 210—242 11 Claims



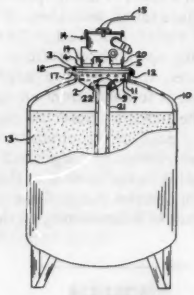
Floating skimmers slidable on an intake conduit having means counteracting the internal pressure drop normally incident to the intake operation. In one embodiment, the cone member has upper vent openings and an internal cylindrical part around the conduit and depending down to near the bottom of the cone. In a second embodiment, the upper cone member is connected pneumatically to the internal chamber of a bellows and the moveable part of the bellows is connected structurally to the cone. In both embodiments, the upper cone has a horizontal flange and the lower float has a flat surface extending slightly past the flange and positioned close to the flange in normal use.

3,707,233

FILTER TANK AND MOUNTING ADAPTOR FOR MULTIPORT VALVES

Marc Lerner, Swan Lake, N.Y.

Filed Oct. 13, 1970, Ser. No. 80,327
Int. Cl. B01d 23/20
U.S. Cl. 210—278 7 Claims

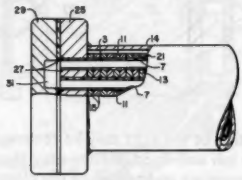


A mounting adaptor for multiport multiposition valves adapted to be removably attached to an opening in a filter tank is provided. The adaptor has a peripheral flange which sealably engages a corresponding flange on the filter tank and is secured in place by a v-band coupling. Two fluid connecting ports for attachment to the multiport valve are provided to supply fluid to and discharge fluid from the filter depending on the valve position. The mounting adaptor also includes a fluid diffuser adapted to be disposed within the filter tank to uniformly distribute the influent fluid across the filter.

3,707,234
SUPPORT MODULE FOR REVERSE OSMOSIS MEMBRANE

Nicholas A. Salemi, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed May 4, 1971, Ser. No. 140,179
Int. Cl. B01d *31/00*
U.S. Cl. 210—321 7 Claims

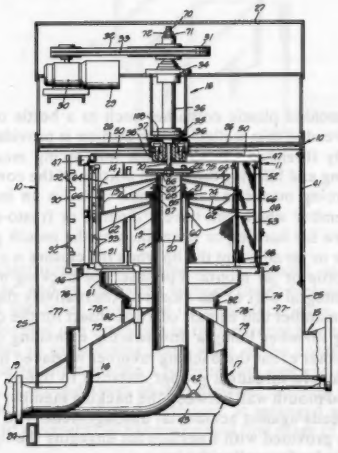


A support module for semipermeable tubular osmotic membranes formed from a stack of discs, which have a plurality of holes which register with holes in adjacent discs, the faces of the discs are rough to provide passageways for fluid to flow between adjacent discs, lengthwise welds form the discs in a rigid stack and cover plates, fastened to the end plates of the stack, have a series of grooves, which are disposed to place the tubular osmotic membranes disposed within the support module in series.

3,707,235
WASTEWATER CONCENTRATOR WITH PLURAL DISTRIBUTORS

Walter J. Talley, Jr., Brentwood Park, Calif., assignor to Sweco, Inc., Los Angeles, Calif.

Continuation-in-part of Ser. No. 42,165, June 1, 1970, abandoned. This application March 19, 1971, Ser. No. 126,080
Int. Cl. B01d *21/26*
U.S. Cl. 210—377 9 Claims

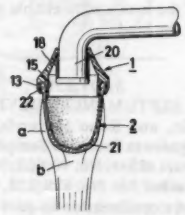


There is disclosed herein equipment and methods for screening and concentrating wastewater overflow from combined sewer systems and the like. Exemplary equipment includes a separator employing a substantially cylindrical rotating screen. Influent is piped upwardly into the equipment and deflected outwardly by plural distributors toward the inner surface of the screen in a manner to achieve a desired flow rate and flow pattern of the influent onto the screen. Means including the distributors are provided for controlling the flow rate and for suitably directing the influent in a plurality of substantially discrete inclined streams toward the inner surface of the rotating screen. The screen is rotated at a speed to achieve a desired centrifugal force. Effluent passes through the screen to an outlet and the remaining concentrate passes to an outlet. The screen is in the form of a screen cage having a plurality of removable screen panels for facilitating replacement of damaged screens or changing screen type or mesh size. Cleaning means is provided for directing a cleaning fluid periodically at the screen. The methods disclosed involve the manner in which the influent, effluent, concentrate and backsplash are handled, and the manner in which the influent is screened to achieve a fluid concentrate which may be pumpable to other treatment equipment for ultimate disposal.

3,707,236
ANTI-SPLASH TAP NOZZLE

Hisatomo Takebayasi, Yokohama, Japan, assignor to Kurita Water Industries Ltd., Osaka, Japan

Filed Aug. 11, 1971, Ser. No. 170,835
Int. Cl. B01d *27/00*
U.S. Cl. 210—449 7 Claims

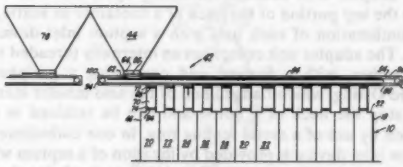


An anti-splash tap nozzle comprising a cap-shaped joint provided with a soft cylinder destined to clamp on the tap outer surface, and a filter provided with a convex head and made of a hard material having a uniform continuously foamed structure.

3,707,237
APPARATUS FOR CHARGING COKE OVENS

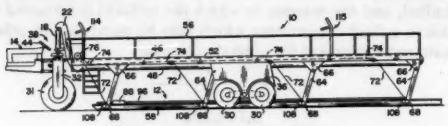
Erich Wiemer, Essen, Germany, assignor to Heinrich Koppers Gesellschaft mit beschrankter Haftung, Essen, Germany

Filed March 31, 1971, Ser. No. 129,926
Int. Cl. C10b *31/04*
U.S. Cl. 214—21 7 Claims



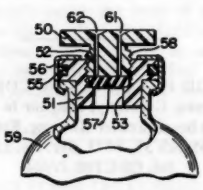
A plurality of endless chain conveyors are positioned in parallel spaced relation above the charging holes of a coke oven battery. The endless chain conveyors are arranged longitudinally relative to the coke oven battery and transversely to the coke oven chambers so that each coke oven chamber can be simultaneously charged from all of the endless conveyors positioned thereabove. The endless chain conveyors are each positioned within an enclosure that has outlet means therefrom to the respective coke oven chambers. A coal tower or hopper is positioned above each endless conveyor and has an outlet means connected to the enclosure to supply coal to the respective endless conveyor. The outlets from the enclosure have gate valve means for each coke oven chamber. Suitable means may be provided to automatically open and close the respective gate valve means. Another embodiment is provided with an inclined conveyor connected to the hopper that conveys coal from the lower conveyor reach to the upper conveyor reach.

3,707,238
PRIME MOVER
John L. Thibodeau, Sr., 8402 12th Street, Tampa, Fla.
Filed Sept. 2, 1970, Ser. No. 68,890
Int. Cl. B60p 1/64
U.S. Cl. 214—390 7 Claims



A vehicle primarily designed to transport a large load, such as a modular home. The vehicle comprises a substantially U-shaped frame to partially enclose the load and load engaging means movably connected to the frame in such a manner as to enable adjustment in a horizontal direction to correspond to the specific size of the load and to enable movement in a vertical direction to lift the load.

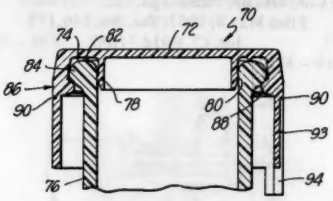
3,707,239
ADAPTER UNIT, SEPTUM INLET DEVICES AND VALVES
Rano J. Harris, Sr., and Rano J. Harris, Jr., both of Baton Rouge, La., assignors to Precision Sampling Corporation
Continuation-in-part of Ser. No. 90,603, Nov. 18, 1970, and a continuation-in-part of Ser. No. 879,232, Nov. 24, 1969, Pat. No. 3,603,471, and a continuation-in-part of Ser. No. 115,496, Feb. 16, 1971. This application July 2, 1971, Ser. No. 159,170
Int. Cl. B64d 41/02
U.S. Cl. 215—38 R 10 Claims



An adapter unit suitable for fitting upon the wall which forms the top portion of the neck of a container or bottle, and the combination of such unit with a septum inlet device or valve. The adapter unit comprises an internally threaded tubular member, with a flanged end containing a peripherally located O-ring, which flanged end of the said tubular member rests atop the neck of a bottle and can be retained in such position by use of a metal sealing ring. In one embodiment, a septum inlet device is provided by location of a septum within the said tubular member, and it can be retained therein by a second tubular member, externally threaded for engagement with the said adapter tubular member. In another embodiment, a valve assembly is located within the adapter unit.

3,707,240
CLOSURE WITH TEAR-OFF SKIRT
Woodrow S. Wilson, Slatersville, R.I., assignor to Polytop Corporation, Slatersville, R.I.
Filed Aug. 27, 1970, Ser. No. 67,467
Int. Cl. B65d 41/22
U.S. Cl. 215—41 1 Claim

A closure for use on a container neck may be constructed including a top adapted to be located over the end of the neck, a sealing structure serving as a cork or stopper for engaging the interior of the neck located on the top so as to depend from it and a dependent skirt located at the periphery of the top so as to fit over and extend around the exterior of the neck. The skirt includes a fixed portion and a tear-off portion separated from the remainder of the closure by a severable means such as a line of reduced thickness, perforations or both. A tab is located on the fixed portion. With this structure



the tear-off portion of the skirt may be removed from the closure so that the tab and fixed portion may thereafter be used as a handle in removing and replacing the closure upon a container neck.

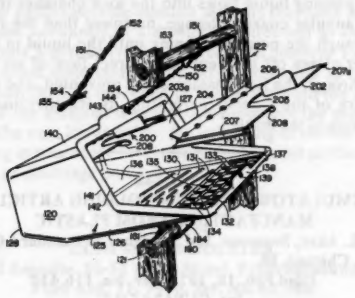
3,707,241
PLASITC CONTAINER WITH THREADED MOUTH STRENGTHENING CLOSURE MEANS
Guy A. Taylor, Batavia, Ill., assignor to Sanford Research Company
Filed April 21, 1970, Ser. No. 30,517
Int. Cl. B65d 41/04
U.S. Cl. 215—43 A 12 Claims

A blow molded plastic container such as a bottle or a jar having a threaded thin walled mouth portion is provided with an internally threaded closure and a reinforcing means for strengthening and backing the mouth portion of the container. The reinforcing means in said closure includes an insert or backing member which can have a tapered or frusto-conical outer surface for backing or strengthening the mouth portion of the bottle or jar adjacent the lip when the closure is screwed over the bottle or jar mouth. The insert or backing member can be an integral part of the closure. Alternatively the insert or backing member can be part of a disc insert for the closure, the backing member being a downwardly extending circular flange. In either event the backing member is spaced inwardly from the closure threads a proper distance to tightly receive the threaded mouth wall between the backing member and the closure threads against accidental dislodgement. The closure can also be provided with a surface for engaging the lip of the mouth of the jar for sealing the jar.

3,707,242
MULTI-USE PAINT TRAY
Henry Golden, and Samuel R. Genca, both of Rochester, N.Y., assignors to Tray-X Corporation, Rochester, N.Y.
Continuation-in-part of Ser. No. 884,127, Dec. 11, 1969, Pat. No. 3,625,388. This application Dec. 11, 1970, Ser. No. 97,252
Int. Cl. E06c 7/14
U.S. Cl. 220—1 R 2 Claims

A multi-use paint tray is disclosed wherein means are provided for positioning the tray into various positions ranging

from a vertical position to a horizontal position on a flat surface, a ladder having rungs or a step ladder. A tray insert means is included for stowing tools such as paint brushes



ready for use in all of the aforesaid positions away from a bottom wall of the paint tray which wall is primarily used for draining paint from paint applicators.

3,707,243

REFRIGERATOR CABINETS

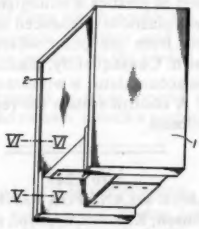
Joshua Wilson Kitson, Huntingdon, England, assignor to U. S. Philips Corporation, New York, N.Y.

Filed Jan. 20, 1970, Ser. No. 4,193

Claims priority, application Great Britain, Jan. 21, 1969, 3,270/69; Jan. 21, 1969, 3,271/69; Jan. 21, 1969, 3,272/69; Jan. 21, 1969, 3,273/69; March 14, 1969, 13,438/69; July 23, 1969, 36,913/69; Sept. 4, 1969, 43,861/69

Int. Cl. B65d *25/18*

U.S. Cl. 220—9 F **11 Claims**



A refrigerator cabinet having an inner lining, an outer surface layer, and an insulating body of foamed plastic material between the inner lining and outer surface layer. The outer layer is formed of a first sheet of thin material having a plurality of folds so as to define three walls of the container and a recess for accommodating a refrigeration unit and an air duct passage. A second sheet of thin material defining at least an additional surface of said container, is arranged so as to be secured to a plurality of flanges on said first sheet of material.

3,707,244

COIN PROCESSING METHOD AND APPARATUS

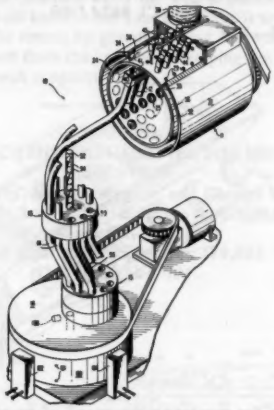
Gerry G. Hull, and Eugene B. Morris, Jr., both of Atlanta, Ga., assignors to ATL Machine Corporation, Atlanta, Ga.

Filed June 22, 1970, Ser. No. 48,077

Int. Cl. G07f *11/00*

U.S. Cl. 221—13 **7 Claims**

A coin processing method and apparatus in which coins of predetermined physical characteristics are lifted from a mass of coins, dropped into a plurality of coin hoppers and moved through individual conduits down to a coin shelf. A predetermined number of coins from the hoppers are allowed to accumulate and form stacks on the coin shelf and the stacks of coins are passed in sequence over a discharge opening in the coin shelf. Balls of a diameter approximately equal to the diameter of the coins are inserted between the coin stacks at the coin shelf discharge opening, and a transparent plastic



material is applied to the line of coin stacks and balls to form a continuous tubular wrapper about the coins and balls. The continuous wrapper is opened at the balls and the balls are separated from the coin stacks, leaving separate packages of coins.

3,707,245

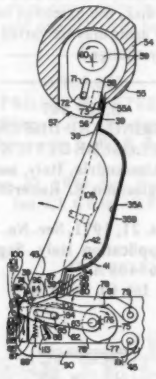
METHOD AND APPARATUS FOR DISPENSING STACKED AND NESTED ARTICLES

George D. Bryan, Jr., Mechanicsville, Va., assignor to Reynolds Metals Company, Richmond, Va.

Filed March 26, 1971, Ser. No. 128,301

Int. Cl. B65g *59/08*

U.S. Cl. 221—251 **30 Claims**

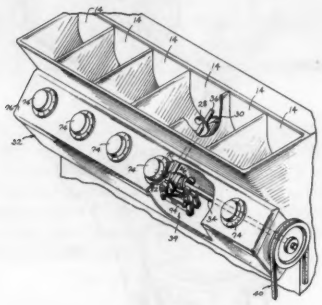


Dispensing apparatus for nested open ended articles wherein a guide structure is provided for receiving a stack of the nested articles with the lead article being at one end of the stack. Means are disposed adjacent the guide structure for causing relative movement between the lead article and the article in the stack adjacent thereto in a direction substantially transverse to the nesting direction of the articles to cause camming between the lead article and the adjacent article so that the lead article will begin to separate on one side thereof from the adjacent article in a direction substantially opposite to the nesting direction. Other means are also disposed adjacent the guide structure for further separating the lead article from the stack in a direction opposite to the nesting direction thereof.

3,707,246
SPEED REGULATING DEVICE FOR MATERIAL DISCHARGE APPARATUS

Edgar C. Ewell, Ossian, Ind., assignor to Modern Mill, Inc., Ossian, Ind.

Filed March 29, 1971, Ser. No. 128,765
Int. Cl. B67d 5/60
U.S. Cl. 222—134 15 Claims

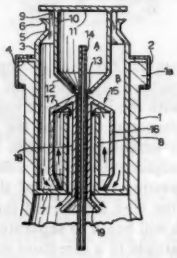


A device for regulating the speed of an auger utilized to deliver grain or similar particulate material from one location to another. A motor driven, constant speed shaft carries a concentric disk which rotates with the shaft and which is tiltable relative to the axis of the shaft. A pair of reciprocal drive couplers is connected to the shaft of the auger and is utilized for imparting one-directional rotative movement to the auger. A pair of rocker arms is operatively connected between the drive couplers and the disk carried by the drive shaft. Each rocker arm has one end connected to a drive coupler and its opposite end resting upon one side face of the disk. Rotation of the disk when in a tilted position causes oscillatory movement of the rocker arms and the resulting actuation of the drive couplers, which in turn cause rotative movement of the auger. The disk carried by the drive shaft is designed so as to be adjustably tiltable relative to the axis of the drive shaft. By varying the tilt of the disk, the extent of oscillatory movement or swing of the rocker arms may be varied and the speed of the auger correspondingly changed.

3,707,247
LIQUID MEASURING AND DISPENSING BOTTLE CLOSURE DEVICE

Piergiacomo Guala, Alessandria, Italy, assignor to Societa Angelo Guala di Piergiacomo E. Roberto Guala & C. S.a.S., Alessandria, Italy

Filed Sept. 21, 1971, Ser. No. 182,497
Claims priority, application Italy, Sept. 23, 1970, 70189 A/70; July 16, 1971, 69408 A/71
Int. Cl. B67d 3/18
U.S. Cl. 222—188 12 Claims

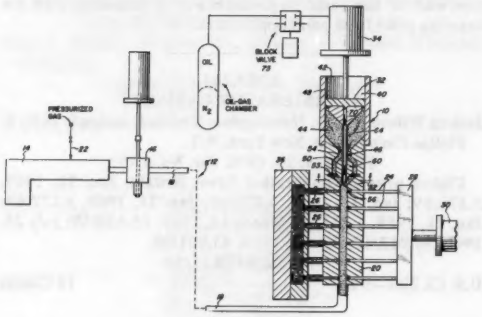


This invention provides an improved liquid measuring and dispensing closure device having axial symmetry and including a tubular body with an internal lock chamber which communicates with the interior of the bottle by way of a narrow coaxial vent tube, the lock chamber also communicating by way of an annular aperture with a first annular coaxial passage which connects the interior of the bottle with a pouring opening. During pouring liquid flows into the lock chamber through a second annular coaxial passage, narrower than the first, and also through the pouring opening until the liquid in the lock chamber closes off the vent tube, direct flow of air into the bottle through the first passage being prevented, and the axial symmetry of the stopper permitting its effective use in any orientation of the bottle.

3,707,248
ACCUMULATOR USEFUL IN MOLDING ARTICLES OF MANUFACTURE FROM PLASTIC

James E. Aker, Seymour, Ind., assignor to Standard Oil Company, Chicago, Ill.

Filed Feb. 18, 1971, Ser. No. 116,410
Int. Cl. B67d 5/52
U.S. Cl. 222—255 2 Claims



Heat degradation of plastics is minimized using an accumulator in which fresh plastic is introduced into the accumulator at a point remote from the point where previously stored plastic is withdrawn. Consequently, plastic which was last introduced into this accumulator is withdrawn before freshly introduced plastic. A control system for regulating the flow of plastic is also disclosed.

3,707,249
DISCHARGE MEANS FOR TANKS OR BINS

William H. Tomlinson, Kansas City, Mo., assignor to Columbian Steel Tank Company, Kansas City, Mo.

Filed Sept. 2, 1970, Ser. No. 69,035
Int. Cl. B65g 65/36
U.S. Cl. 222—464 3 Claims

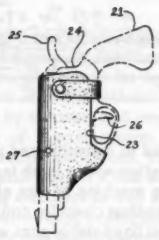
A vertical row of vertically spaced baffles is provided on the side wall of a receptacle for loose material such as grain, the

series of baffles forming a vertical conduit from near the top to adjacent the bottom of the receptacle which has uniformly vertically spaced inlets into it at the upper end of each of the baffles. The baffles are secured to the side wall of the receptacle by either welding or bolting and have flanges for this purpose. The baffles provide conduit sections that have flat walls that incline outwardly in a downward direction so that each baffle forms a gradually widening conduit section. The grain or other loose material is drawn off from the top of the mass downwardly feeding into each of the baffles until the angle of repose of the material is reached, whereupon the material is fed into the next lower baffle, the unloading of the bin or tank thus being in successive layers from the topmost portion of the contents as discharge proceeds.

3,707,250
CONCEALED HOLSTER

Raymond Esposito, 56-51 195th Street, Fresh Meadows, N.Y.

Filed Aug. 11, 1970, Ser. No. 62,968
Int. Cl. F41c *33/02*
U.S. Cl. 224—2 B **2 Claims**



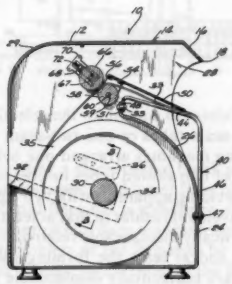
A concealed weapon holster utilizing a one-piece body folded so as to have two halves and a plurality of apertures permitting gas egress upon the discharge of a shell. The two halves form a pair of flaps which permit the insertion of ammunition into the weapon chamber, and detachable securement on any desirable location on the person, such as a pocket or belt.

The holster is designed to wrap around the weapon in a glove-like fashion and remain in such a posture while in use.

3,707,251
ROLL FILM DISPENSER

Merwin J. Dashnier, and James A. Diring, both of Green Bay, Wis., assignors to Alwin Manufacturing Company, Inc., Green Bay, Wis.

Filed Dec. 7, 1970, Ser. No. 95,523
Int. Cl. B26f *3/02*
U.S. Cl. 225—21 **5 Claims**

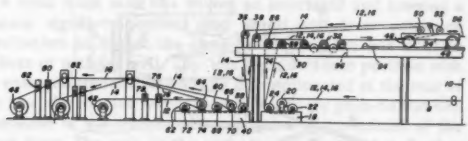


A dispenser for a supply roll of web material or roll film includes spaced web supports connected to a dispenser wall below the dispensing slot to support the free end of the web in a convenient access position below a tear-off knife. Correspondingly spaced tabs are pivoted to the dispenser for swinging movement across the dispenser outlet between a position to clamp the web on the web supports and an upwardly displaced position when the web is pulled and lifted against the tear-off knife. After a length of film is severed from the roll, the tabs return by gravity toward the web supports, removing the web from the knife and clamping the free end of the web on the web supports.

3,707,252
AUTOMATIC TENSIONING DEVICE FOR MULTIPLE LINE STRIP

Joseph J. Kasecky, New Kensington, and Charles W. Thompson, Blairsville, both of Pa., assignors to Allegheny Ludlum Industries, Inc., Pittsburgh, Pa.

Filed Sept. 10, 1971, Ser. No. 179,401
Int. Cl. B65h *25/04*
U.S. Cl. 226—25 **14 Claims**

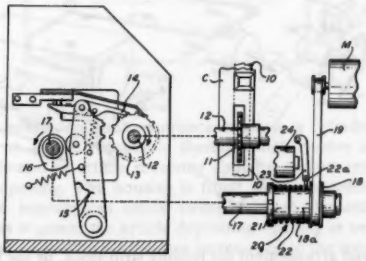


An automatic tensioning device for separate strips in a multiple strand process line for preventing sagging of lines of strip and thereby guiding the strip in separate paths of travel and preventing their drifting into each other and characterized by separate sets of strip-engaging rolls which are responsive to strip sagging. Each set of rolls has one roll which drops by gravity in response to reduction in strip tension, thereby maintaining the tension necessary for guiding the individual strip in its designated line of travel. The apparatus includes a position-control servomechanism responsive to the position of the one roll and directed to strip drive rolls for increase of the strip speed and returning said one roll to its home position.

3,707,253
VARIABLE PROJECTOR SPEED CONTROL

Henry L. Brill, Flushing, N.Y., and James A. Stanford, East Orange, N.J., assignors to E. R. E. Laboratory, Inc., West Orange, N.J.

Filed Aug. 31, 1971, Ser. No. 176,517
Int. Cl. G03b *1/24*
U.S. Cl. 226—76 **12 Claims**



A film projector is stepped ahead by a ratchet mechanism operated by a rotating cam itself driven from a motor through a one-revolution integrating clutch. The clutch is controlled by a solenoid which when continuously energized causes the clutch to be continuously engaged and the film to be advanced

at a maximum speed of about 22 frames per second. Lower projector speeds down to one frame every two seconds are accomplished by cutting off the steady current supply to the solenoid and operating it by a pulse generator. An RC timing circuit for the generator has a manually variable rheostat which at zero setting (minimum resistance) has a time constant of the order of 22. When the rheostat is moved from zero setting it first operates a switch to cut off the steady current supply to the solenoid and then it activates the pulse generator at a rate determined by the timing circuit.

3,707,254

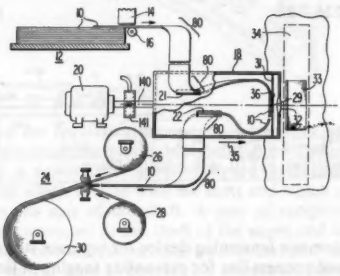
AERIAL PHOTOGRAPHY

Richard David Scott, Camden, N.J., assignor to RCA Corporation

Filed March 19, 1971, Ser. No. 126,112

Int. Cl. B65h *17/32*

U.S. Cl. 226—97 **7 Claims**



Discrete lengths of elongated web are both pushed and pulled through a complex path formed in part by spaced-apart guides made of porous material. Pressurized gas forced into the path through the porous walls creates gas layers over which the webs ride. Means are also provided for transporting the webs between stationary and moving paths.

3,707,255

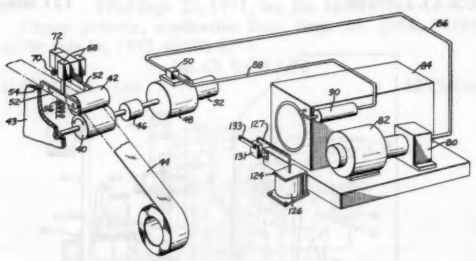
FEED ARRANGEMENT FOR STRIP STACK

Merrill L. Ridgway, Minster, and Willard D. Kaiser, Grove City, both of Ohio, assignors to The Minster Machine Company, Minster, Ohio

Continuation-in-part of Ser. No. 832,202, June 11, 1969, abandoned. This application Jan. 13, 1971, Ser. No. 106,151

Int. Cl. B65h *17/22*

U.S. Cl. 226—136 **21 Claims**



Feed arrangement for feeding strip stock, or the like, into a press in which the feeding mechanism for the stock comprises a drive roller which drives the stock and which also drives a signal producer, the signal from which is compared with another signal preset on a manually adjustable signal producer with the feed being automatically terminated when the two signals bear a certain relation to each other. The signals may be digital signals or analog signals.

ERRATUM

For Class 227—130 see:
Patent No. 3,707,406

3,707,256

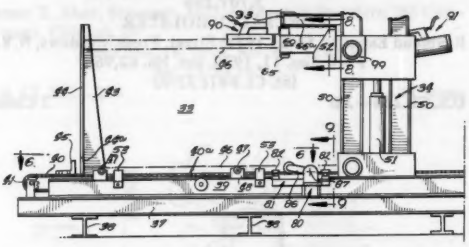
INTERIOR DOOR UNIT ASSEMBLY MACHINE

Adolph H. Lubin, deceased, late of Springfield, Ill.; by Robert L. Lubin, Springfield, Ill.; by Rose Lubin, Springfield, Ill. (co-executors), and Ivan R. Stacy, Springfield, Ill., assignors to Barker-Lubin Company, Springfield, Ill., by said Stacy

Filed Nov. 19, 1970, Ser. No. 91,135

Int. Cl. B27f *7/06*

U.S. Cl. 227—7 **10 Claims**



A machine is adapted to assemble and package a pre-hung interior door unit, together with a jamb including a split latch and exterior trim. The machine has an elongated horizontal bed provided with an endless chain for conveying the door and side jamb members past fixed staple guns which staple the trim to their associated jamb members. Lugs on the chain stop the assembly prior to firing the guns. A separate gun drives a temporary staple to hold the two sections of the jamb together. Another gun drives a staple to temporarily hold the door in place so that after it is packaged, the assembly is rigid for shipping, yet easily disassembled as far as needed for installation.

3,707,257

PLANT FOR THE SELECTIVE PRODUCTION OF EITHER TWO ONE-SEAM TUBES OR ONE TWO SEAM-TUBE

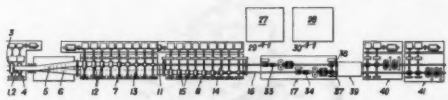
Alfred Wogerbauer, and Anton Hulek, both of Linz, Austria, assignors to Vereinigte Osterreichische Eisen- und Stahlwerke Aktiengesellschaft, Linz, Austria

Filed Sept. 8, 1970, Ser. No. 70,439

Claims priority, application Austria, Sept. 8, 1969, A 8493/69

Int. Cl. B23k *1/00, 5/00*

U.S. Cl. 228—6 **2 Claims**



The disclosure relates to a plant for the selective production of either two one-seam tubes or one two-seam tube comprising two roll forming machines arranged one behind the other for the formation of two slotted tubes or component sections from strips and a welding apparatus with two welding stations, wherein the improvement resides in that at least one roll forming machine is vertically displaceable relative to the other roll forming machine and at least the forming rolls of one roll forming machine are horizontally displaceable relative to the forming rolls of the other roll forming machine and the positions of the two welding stations are likewise changeable relative to each other. This plant is highly economical and versatile as regards tube shapes and dimensions.

3,707,258

SOLDERING GUN FOR ONE-HANDED MANIPULATION

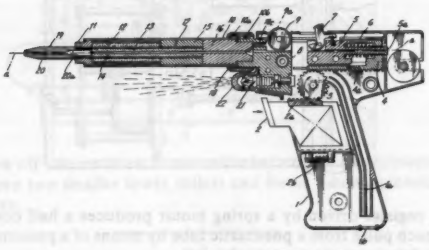
Klaus Schlitt, 2, Voltenseestrasse, 6 Bergen-Enkheim near Frankfurt/Main, Germany

Filed May 13, 1969, Ser. No. 824,209

Claims priority, application Germany, March 26, 1969, P 19 15 259.1

Int. Cl. B23k *3/06*

U.S. Cl. 228—52 17 Claims



A soldering gun, and more particularly a soldering gun for one-handed manipulation is provided containing a supply bobbin for soldering wire and means for feeding the latter. Said soldering gun consists of two functional assemblies resiliently coupled as required by the state and properties of the soldering wire by means of a compression spring being placed between said cooperating assemblies. The soldering wire advances through the axial bore of a fine steel barrel which contains insulating lining members as well as a heating cartridge, the advance of the wire being controlled by a locking wheel located in a stationary part of the soldering gun. Thus a thrust is generated that does not exceed the buckling strength of the heated wire.

3,707,259

FOLDER

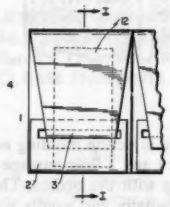
Herbert Meyer, Regensburg, Germany, assignor to The Herold Press, Inc., New York, N.Y.

Filed Sept. 1, 1970, Ser. No. 68,695

Claims priority, application Germany, Nov. 29, 1969, G 69 46 411.5

Int. Cl. B65d *27/22*

U.S. Cl. 229—92.5 1 Claim



A folder comprising a single folded blank and characterized by a rear portion and upper and lower flaps hinged to said rear portion. One of said flaps has a transverse slot therethrough, into which the other of said flaps may be received. Inserts such as brochures, pamphlets or the like may be inserted into the slot and retained in place by the other of the flaps also inserted through the slot. In a preferred embodiment of the invention, the folder may comprise a two-part folder having two identical portions in side-by-side relationship and joined by a common fold line.

3,707,260

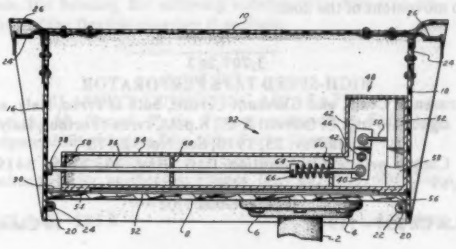
MAIL BOX WITH REMOTE SIGNAL TRANSMITTER

Leodore H. Gelineau, Sr., R.F.D. No. 2, Southbridge, Mass., and Gordon A. Moore, R.F.D. No. 1, Palmer, Mass.

Filed March 30, 1971, Ser. No. 129,354

Int. Cl. B65d *91/00*

U.S. Cl. 232—36 6 Claims



A rural route mail box having an insertable unit housing a remote signal transmitter and a rod and lever actuating mechanism to trigger the same on opening the box door to deliver or pick-up mail. The unit is slidable into position with an enlarged transmitter housing portion located at the rear of the box, the rod and lever being arranged for push-button like operation of the transmitter responsive to movement of the front door. The unit, in the embodiment disclosed, is further slidably movable under spring pressure for transmitter operation in response to the opening of a door at the rear end of a box having an access opening at either end.

3,707,261

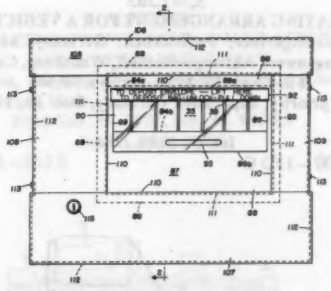
AFTER-HOURS DEPOSITORY ENTRANCE

Larry I. Cutter, Cedar Rapids, Iowa, assignor to LeFebure Corporation, Cedar Rapids, Iowa

Filed June 1, 1970, Ser. No. 42,202

Int. Cl. E05g *1/00*

U.S. Cl. 232—44 31 Claims



An after-hours depository entrance employs a cylindrical drum with an article receptacle therein which rotates in a housing between an article receiving opening and an article depositing opening. The housing is fitted with a number of fixed article interceptors which sweep through the article receptacle as it passes the article depositing opening in order to insure that no articles therein can be returned to the receiving opening, the drum being rotatable in one direction only for this purpose. The drum is rotatable in both directions, however, through a limited arc so that if the receptacle is improperly loaded, it can be reversed for reloading.

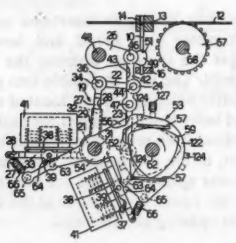
An important feature of the depository entrance is a closure for the housing receiving opening in the form of a two-way sliding door which when slid in one direction opens into the

receptacle for receipt of bagged deposits and which when slid in the other direction brings a slot only in the door into communication with the receptacle for envelope deposits. A cover plate is provided over the door with an aperture therein in registry with the housing receiving opening, margins of the aperture overlapping margins of the door in order to prevent entry of weather elements into the housing receiving opening. An electric motor drives the drum and a circuit interconnecting the door and drum controls operation of the motor according to movement of the door.

3,707,262
HIGH-SPEED TAPE PERFORATOR

Armando Costa, and Giovanni Cerutti, both of Ivrea, Italy, assignors to Ing. C. Olivetti & C., S.p.A., Ivrea (Torino), Italy

Filed Nov. 25, 1970, Ser. No. 92,778
Claims priority, application Italy, Nov. 28, 1969, 54196 A/69
Int. Cl. G06k *1/02*
U.S. Cl. 234—119 **10 Claims**

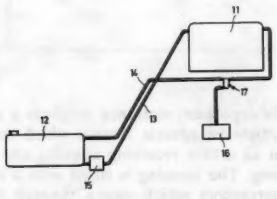


A high-speed paper tape perforator is disclosed including a series of punches each adapted to be actuated by a corresponding kinematic train. Each train includes a selection electromagnet for selecting the punches to be actuated. A frame common to the kinematic trains cyclically actuates the trains. A kinematic train actuated by the common frame is also provided for advancing the paper tape alternately with each perforation cycle.

3,707,263
HEATING ARRANGEMENT FOR A VEHICLE

Helmut Baumgartner, Fallersleben, Germany, assignor to Volkswagenwerk Aktiengesellschaft, Wolfsburg, Germany

Filed Nov. 18, 1970, Ser. No. 90,605
Claims priority, application Germany, Dec. 10, 1969, P 19 61 831.6
Int. Cl. B60h *1/14*
U.S. Cl. 237—12.3 C **2 Claims**

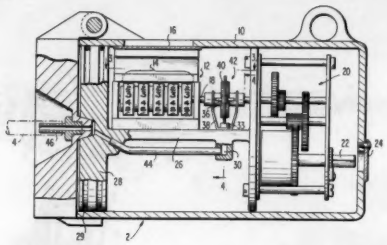


A motor vehicle comprising an injection-type engine, a gas tank, a feed conduit for supplying fuel to the engine under excess pressure from the tank, and a fuel return line connected between the engine and the tank, the return line being under reduced pressure, in combination with a heating device operable with the same type of fuel as the engine, a bubble separator connecting the heating device to the fuel return line and adapted to separate the bubbles formed in the return line.

3,707,264
SPRING DRIVEN TRAFFIC COUNTER

Harry E. Trigg, and Luther W. Mitchell, both of Hampton, Va., assignors to International Transportation Service Corporation, Hampton, Va.

Filed Jan. 3, 1972, Ser. No. 214,910
Int. Cl. G06m *1/08*
U.S. Cl. 235—99 A **3 Claims**



A register driven by a spring motor produces a half count for each pulse from a pneumatic tube by means of a pneumatically driven escapement mechanism.

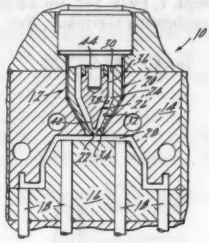
ERRATUM

For Class 237—12 see:
Patent No. 3,707,263

3,707,265
NOZZLE FOR AN INJECTION MOLDING MACHINE

Alex Seres, Fraser, Mich., assignor to Incoe Corp., Troy, Mich.

Filed March 3, 1971, Ser. No. 104,293
Int. Cl. B29f *1/08*
U.S. Cl. 239—601 **6 Claims**



A nozzle for a plastic injection molding machine having an axially extending orifice and a flow passage of annular cross-section communicating with the orifice. The flow passage is defined in part by a radially and axially converging radially outward wall with the rate of radical convergence increasing as the orifice is approached.

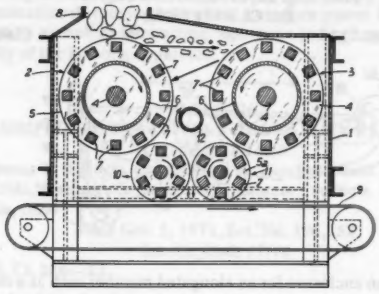
3,707,266
CRUSHING MACHINES

Gerard J. Llabres, Residence Robineau No. 45, Muret, France

Filed Dec. 7, 1970, Ser. No. 95,714
Int. Cl. B02c *13/20*
U.S. Cl. 241—154 **7 Claims**

A crusher adapted to crush clay for the manufacture of bricks and tiles, even when the raw material is somewhat

moist. To this end, two upper rollers are provided each with an annular series of parallel rods to cause the material to be



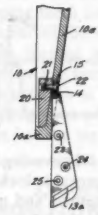
thrown off one rotor on to the other before it is comminuted between two smaller lower rollers and forms a homogeneous mixture.

3,707,267

REPLACEABLE VANE INSERT FOR IMPELLER

Philip G. Bump, Pittsfield, Mass., assignor to Beloit Corporation, Beloit, Wis.

Filed Feb. 24, 1971, Ser. No. 118,429
Int. Cl. B02c *18/06*
U.S. Cl. 241—294 **6 Claims**



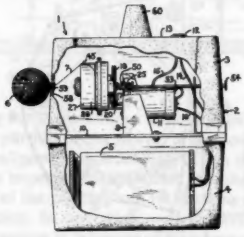
An impeller for a paper pulp having a plurality of blade receiving stations each receiving a blade with a bulbous end seated in an axial recess for locking the blade in position with the blade additionally being held by a slotted rotor and being bolted in place with its outer end shaped for refining.

3,707,268

ARTICLE RETRIEVING APPARATUS

Gerald R. Kelly, 6506 E. 18th Street, Kansas City, Mo.

Filed March 2, 1970, Ser. No. 15,692
Int. Cl. B65h *75/00*; **A01k** *89/00*
U.S. Cl. 242—54 **3 Claims**



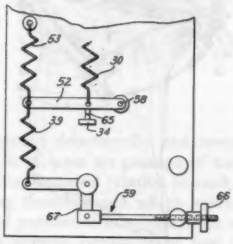
A portable article retrieving apparatus is enclosed within a housing having a base member mounted therein with a frame upstanding from the base member and a storage bobbin sleeved on a shaft which is rotatably mounted on the frame and rotated in response to activation of power means. A flexible member has an article to be retrieved affixed to one end thereof and the other end affixed to the bobbin. Bobbin positioning means are operatively connected to the bobbin to position same to receive an intermediate portion of the flexible member in response to rotation of the shaft for winding the flexible member around the bobbin and means operated from outside the housing for allowing substantially drag-free unwinding of the flexible member therefrom.

3,707,269

FILAMENT TENSIONING APPARATUS

Marcel A. M. Gerest, Paris, France, assignor to Societe A Responsabilite Limitee Dite Altic, Paris, France

Filed May 27, 1970, Ser. No. 41,044
Claims priority, application France, May 28, 1969, 6917286
Int. Cl. B65h *59/16*
U.S. Cl. 242—155 R **6 Claims**



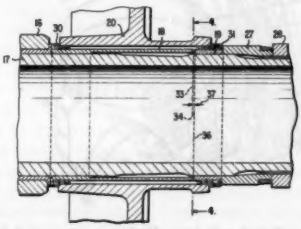
An automatic wire tensioning device for regulating the tension in a filament on a rotatable pulley during reeling and unreeling operations. The braking force on the pulley is controlled by a friction brake which is operated by a force balancing lever actuated by a braking spring and a wire tension spring. The braking spring has an adjustable loading and the wire tension spring senses the actual tension on a wire wound around and frictionally engaged with the pulley in an interdependent manner.

3,707,270

WEAR SLEEVE-TRANSDUCER COMBINATION FOR AIRCRAFT LANDING GEAR

Eric Laimins, Belmont, Mass., assignor to BLH Electronics, Inc., Waltham, Mass.

Filed Nov. 30, 1970, Ser. No. 93,785
Int. Cl. B64c *25/00*
U.S. Cl. 244—103 R **11 Claims**



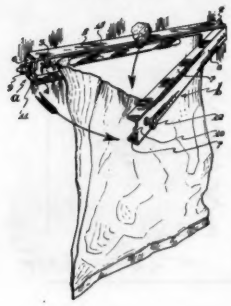
A brake sleeve protecting an aircraft landing gear axle from brake collar wear is prevented from adversely affecting distributions of forces sensed by an inside-axle strain gage transducer by being split into a pair of end-to-end, substantially tubular sleeve parts fitted on the axle with certain clearance and

having a semi-annular gap formed therebetween above the neutral axis of the axle, whereby pivotal movements of the sleeve parts relative to one other are accommodated about a transverse horizontal axis at or below the neutral axis and measurement-disturbing mechanical interferences between the sleeve and the axis are minimized.

3,707,271
CLOSURE CONSTRUCTION FOR PLASTIC BAGS

Manuel Rodriguez Sanchez, and Jose Puigdomenech Baste, both of Gorriti 3688, Buenos Aires, Argentina

Filed Dec. 14, 1970, Ser. No. 97,820
Claims priority, application Argentina, Dec. 16, 1969, 225,919
Int. Cl. B65b 67/04
U.S. Cl. 248—101 **4 Claims**

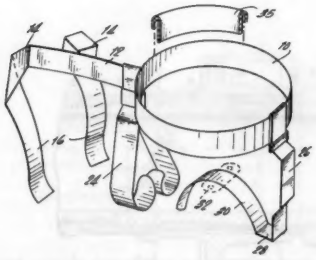


A hinged closure device for supporting a removable plastic bag adjacent to its mouth and for selectively holding the mouth of the plastic bag in an open position so that refuse, etc., may be placed into the plastic bag or in a closed position wherein the mouth of the plastic bag is closed and sealed.

3,707,272
CUP HOLDER FOR AUTOMOBILES

Lester M. Rasmussen, 611 N. Ash Street, Momence, Ill.

Filed May 19, 1970, Ser. No. 38,746
Int. Cl. A47c 7/70
U.S. Cl. 248—311 **8 Claims**

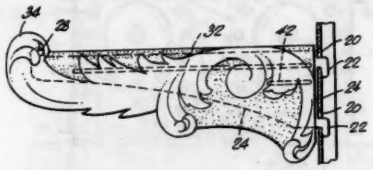


A cup holder is provided with clip and brace means for detachably securing same to the inside of an automobile door to hold any food dispensed in cups. Auxiliary clips detachably secured to the holder can be used to support bags holding additional food or refuse as well as holding napkins and the like.

3,707,273
SHELF BRACKET COVER

Jack D. Bortz, 240 N. Crescent Drive, Beverly Hills, Calif.

Filed Aug. 20, 1970, Ser. No. 65,645
Int. Cl. A47g 29/02
U.S. Cl. 248—235 **6 Claims**

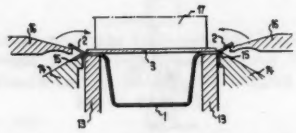


This is an enclosure for an elongated member such as a shelf bracket which can be slipped over the bracket after it has been secured to a support member to provide a decorative cover for the bracket.

3,707,274
SLIDE BOX

Thomas Hausl-r; Heinz Werren, both of Fribourg, and Ernest Eltschinger, Cottens, all of Switzerland, assignors to CP Conseiller en Packaging S.A., Fribourg, Switzerland

Filed Sept. 17, 1970, Ser. No. 73,080
Claims priority, application Switzerland, Dec. 3, 1969, 17999/69
Int. Cl. B65b 7/28
U.S. Cl. 53—40 **2 Claims**

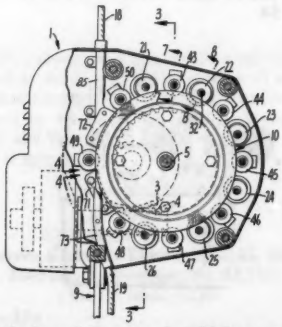


A slide box having a slide lid covering the opening of a container, said lid having disengageable locking means preventing removal of the lid, and a method and machine for manufacture of said slide box wherein the lid is applied onto flanges in the plane of the container opening whereafter such flanges are turned over round the edges of said lid.

3,707,275
HOISTING DEVICE

Carter H. Arnold, 317 Rocky Point Road, Palos Verdes Estates, Calif.

Filed Sept. 4, 1970, Ser. No. 69,709
Int. Cl. B66d 1/30
U.S. Cl. 254—150 **12 Claims**



A hoisting device of the type in which a rope is wound around a drum to provide a plurality of windings in side by

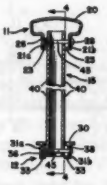
side substantially parallel relationship. The shunting of the rope from one winding to the adjacent winding and the tensioning of the rope is accomplished by rollers so as to provide automatic self-reeving action and to reduce power loss due to friction as well as minimizing rope wear and enhancing reliability of the hoisting apparatus.

3,707,276

SIMPLIFIED RELATIVELY HEAVY DUTY RAILING CONSTRUCTION

Thomas V. Francis, and Edward L. Borchers, both of Russia, Ohio, assignors to Superior Aluminum Products, Inc., Russia, Ohio

Filed Nov. 5, 1971, Ser. No. 196,152
Int. Cl. E04h 17/16
U.S. Cl. 256—22 7 Claims



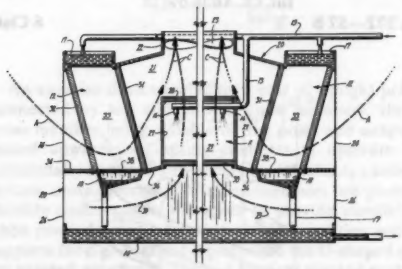
Relatively heavy duty aluminum top and base rail extrusions are disclosed for railing constructions. Each extrusion includes an intermediate top portion and a pair of spaced and downwardly extending first and second side flanges. A pair of vertically spaced and inwardly extending rib-like jaws having internal serrated gripping teeth are continuously formed during the extrusion process on the first side flanges. and a plurality of openings are formed in the second side flanges diametrically opposed to the teeth of the first side flanges. Pickets are pivoted to the rails at their upper and lower ends by bolts extending through the pickets from the openings in the second side flanges into the teeth on the first side flanges.

3,707,277

COMBINATION CROSS FLOW AND COUNTER FLOW COOLING TOWER

Peter M. Phelps, 15 Buckeye Way, Kentfield, Calif.

Filed March 25, 1970, Ser. No. 22,506
Int. Cl. B01f 3/04
U.S. Cl. 261—23 6 Claims



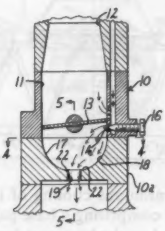
A cooling tower including a counter flow packing section in the central portion of the tower, cross flow fill sections positioned laterally to and spaced-apart from the first named section, and an impermeable partition therebetween. A substantial portion of the packing and fill sections are disposed at the same elevation. In operation, water gravitating through the cross flow section is intersected by a transversely flowing air which is directed upwardly out of the tower. Simultaneously, an independent source of air is directed from below the counter flow section, wherein free counter flow with gravitating water occurs, and thence upwardly out of the tower.

3,707,278

CARBURETOR FOR INTERNAL COMBUSTION ENGINE

Porter Landrum, Birmingham, Ala., assignor to Porter Landrum, Jr.; Edward Y. McMorries; Mrs. Marshall Timberlake, Birmingham, Ala.; Mrs. William Null, Salina, Kans. and Mrs. Willie Mae McMorries, Birmingham, Ala., a part interest to each

Filed Oct. 26, 1970, Ser. No. 83,717
Int. Cl. F02m 29/14
U.S. Cl. 261—62 10 Claims



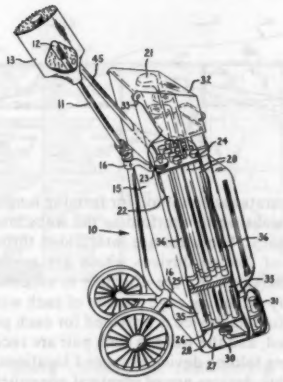
Oppositely disposed downwardly and inwardly extending concave side walls in main air passage of carburetor below throttle terminating in spaced relation to each other to define elongated opening therebetween which extends transversely of air passage and parallel to side walls. Side walls direct oppositely disposed streams consisting of fuel and air toward each other prior to passing through elongated opening.

3,707,279

GOLF CLUB AND BALL WARMER

Henry J. Kaiser, deceased, late of 730 N.W. 20th Avenue, Portland, Oreg. (by Agnes Kaiser, heir)

Filed Jan. 19, 1970, Ser. No. 3,674
Int. Cl. F27b 9/00; A63b 55/08
U.S. Cl. 263—2 R 6 Claims



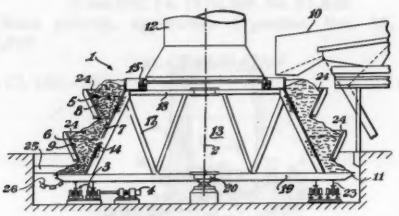
Heated tubes receive balls and the handles of clubs. The tubes may be incorporated in a golf cart or bag and a separate ball warmer is disclosed. In different modifications the tubes are heated by a gas flame, electric heating elements, a chemical heater or charcoal-type fuel sticks. The heat dries and warms the club handles when wet or cold and increases the elasticity of the balls so that longer drives may be made in cold weather.

3,707,280

APPARATUS FOR COOLING HOT MATERIAL IN BULK

Johannes Lorrek, Murb (Ruhr), and Josef Lorrek, Essen, both of Germany, assignors to Head Wrightson and Company Limited, Yarm, Yorkshire, England

Filed Dec. 22, 1970, Ser. No. 99,960
Claims priority, application Germany, Dec. 20, 1969, P 19 63 936.2; Feb. 10, 1970, P 20 05 928.3
Int. Cl. F27b *21/00*
U.S. Cl. 266—20 4 Claims



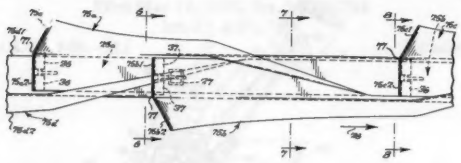
Apparatus for continuous cooling of iron sinter and other hot material in bulk comprising a base part, at least two annular troughs supported on the base part for rotary motion about a vertical axis, said troughs being superimposed one above the other, each trough being open at the top and bottom to permit of introduction and flow through of material be discharge from the bottom thereof, and having a downwardly tapering section, means for introduction of material into the upper trough from which it passes into the lower trough to discharge therefrom and means for injecting cooling medium into the bed of material in each trough.

3,707,281

WEB FOLDING APPARATUS AND METHOD

James A. Murphy, Camarillo, Calif.; Charles A. Lee, Knoxville, Tenn., and Eduards Spravniks, Weston, Ontario, Canada, assignors to International Paper Company, New York, N.Y.

Continuation-in-part of Ser. No. 737,034, June 14, 1968, Pat. No. 3,542,356. This application Nov. 23, 1970, Ser. No. 91,711
Int. Cl. B65h *45/22*
U.S. Cl. 270—40 23 Claims



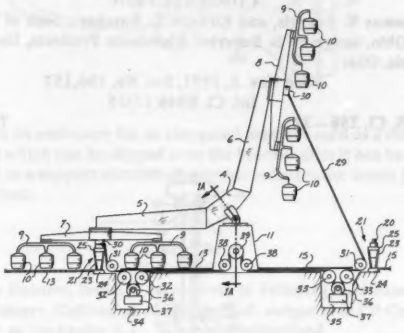
An apparatus and method for forming longitudinal folds in a series of webs while interfolding the webs into a continuously moving stack. The webs are interfolded through the use of a plurality of folding devices which are positioned along the path of the stack and are effective to successively turn a longitudinally extending edge portion of each web over the stack. A single folding device is provided for each pair of webs to be interfolded, and the webs in each pair are received by the corresponding folding device at spaced locations along its length. The folding devices are of identical construction and include longitudinal guide elements for preventing the turning over of an edge portion of the web received at the first location until after it has moved past the succeeding location. An angularly disposed guide element on each folding device thereafter turns the edge portion over the stack. An edge portion of the second web received by the folding device is not turned over until the web passes the first location on the immediately succeeding folding device and is received by an additional angularly disposed guide element thereon.

3,707,282

PLANETARY AMUSEMENT RIDE

Ralph G. Robinson, Tempe, Ariz., assignor to Le Roy A. Anderson, Scottsdale, Ariz., a part interest

Continuation-in-part of Ser. No. 720,756, April 12, 1968, abandoned. This application Feb. 5, 1970, Ser. No. 8,925
Int. Cl. A63g *1/08, 27/04*
U.S. Cl. 272—36 3 Claims



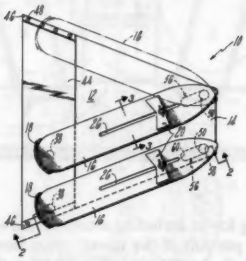
An amusement ride is described of duplex structure having a pair of main rotatable wheels or spiders which carry rotatable subwheels or spiders. The subwheels in turn carry passenger capsules or compartments. Two main arms which carry the main wheels are at obtuse angles to each other and are joined to form a rigid structure which is pivoted on a solid base for rocking in a vertical plane. The arms are rocked by cable and winch drum arrangement or by hydraulic piston mechanism. The main wheels or spiders are driven in rotation by hydraulic or electric motors; the subwheels can be rotated dependently or independently by the same or separate prime mover means. One set of wheels can be loaded and/or operated like a merry-go-round while the other set is high in the air analogous to a Ferris wheel.

3,707,283

SKI BOARD TRAINING DEVICE

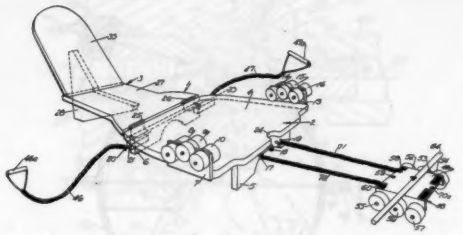
Gerald R. Cormier, 17 Desmond Drive, Wethersfield, Conn.

Filed Aug. 10, 1970, Ser. No. 62,541
Int. Cl. A63b *69/18*
U.S. Cl. 272—57 B 6 Claims



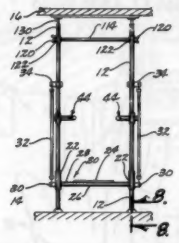
A platform, a pair of skis, and individual support means for supporting each ski for pivoting and rocking motion about mutually perpendicular axes of rotation while permitting limited fore and aft translational movements of each ski independently of the other ski relative to its respective longitudinal axis.

3,707,284
EXERCISE AND MASSAGE DEVICE
John Waldeck, 2764 Faber Avenue, Cincinnati, Ohio
Filed April 21, 1971, Ser. No. 136,109
Int. Cl. A63b 21/00
U.S. Cl. 272—58 15 Claims



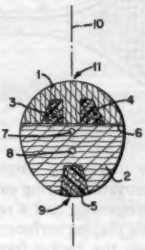
An exercise and massage device comprising a body support structure having a base assembly and a back assembly. The back assembly is capable of assuming at least two positions so that the operator may sit or recline upon the body support structure. The body support structure carries a plurality of rollers whereby parts of the operator's body can be massaged. In addition, tension springs may be detachably affixed to the body support structure in various positions and combinations to be engage by the operator's hands and feet.

3,707,285
HORIZONTAL BAR EXERCISING DEVICE
Robert M. Martin, 90 N. Hudson Avenue, Pasadena, Calif.
Filed July 23, 1970, Ser. No. 57,532
Int. Cl. A63b 1/02
U.S. Cl. 272—62 9 Claims



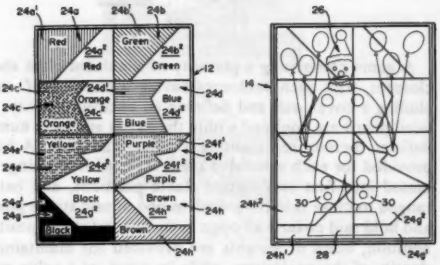
An exercise device including a pair of upright poles interconnected by top and bottom cross members, the bottom cross member being slidable on the poles and adapted to be biased upwardly by spring elements at opposite ends. A horizontally disposed weight may be detachably carried on the bottom cross member. U-shaped members are pivotally and slidably connected to the poles to provide parallel handles when pivoted to an inwardly extending position and provide supports for a pivotal bed frame when the U-shaped members are pivoted outwardly. The bed frame is pivoted such that the center of gravity of the exerciser will be shifted back and forth across the pivotal axis by moving the hands from the sides towards the head. A canvas material supports the buttocks, back and head while a pair of cross elements engage the ankles and the feet. The cross elements are adjustable along the length of the body frame and with respect to each other. A pair of U-shaped hooks may be secured to the exerciser's ankles and engage the top cross bar to suspend the exerciser in an inverted position or engage one of the cross elements on the body frame to hold the exerciser stationary on the body frame as he pivots from an upright position to an inverted position.

3,707,286
BAR STRUCTURE FOR THE HORIZONTAL BARS OF A GYMNASTIC APPARATUS
Albert Spieth, Baumreute 15, Oberesslingen, and Rudolf Spieth, Haus-14, Esslingen-Oberhof, both of Germany
Filed July 6, 1970, Ser. No. 52,422
Int. Cl. A63b 3/00
U.S. Cl. 272—63 8 Claims



A gymnastic apparatus having horizontal laminated bars substantially of wood, wherein each bar comprises upper and a lower lamena glued together at an interface therebetween, and wherein longitudinal, cord-like inserts of elastic, synthetic material of inorganic origin are disposed in grooves of the lamenas. The bar is symmetrical along an imaginary vertical center line. The lamenas have at least three inserts. The direction of the fiber of the upper of the lamenas extends substantially vertically. Two of the inserts are disposed in the upper lamena and engage the interface provided between the upper and lower lamenas, and the third of the inserts is disposed in the lower lamena and extends to the lower outer face of the lower lamena.

3,707,287
COLOR FAMILIARIZATION GAME
Berdine E. Spector, 67 Wyllys Street, Manchester, Conn.
Filed July 28, 1971, Ser. No. 166,707
Int. Cl. A63f 9/10
U.S. Cl. 273—157 R 9 Claims

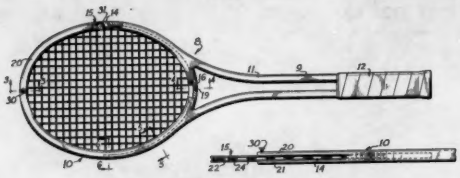


A game for young children for familiarizing them with colors and their word names, including a board and cover, the board being divided into parallel rows of boxes of different color, and a plurality of matching pairs of puzzle sets with the pieces of the pairs being physically interchangeable. One piece of each set is color coded to one of the boxes, and all of the pieces of each set bear the name of the particular color. When the pieces are assembled on the board in proper relation to the boxes and then inverted, a picture on the back of the assembled pieces serves as a proof that the pieces have in fact been properly assembled.

3,707,288
RACKET WITH REPLACEABLE STRING FRAME

Thomas B. Edlefsen, 1315 N. June Street, Hollywood, Calif.

Filed March 29, 1971, Ser. No. 129,059
Int. Cl. A63b 51/00
U.S. Cl. 273—73 L 5 Claims

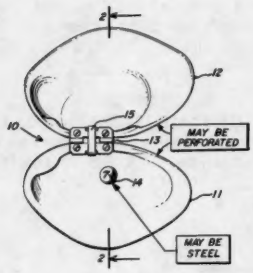


A racket for use in playing tennis or similar games, the racket having a removable playing surface. The racket-frame is provided with an opening, and a removable string-frame is provided to carry the playing surface. The string-frame can be easily removed from the racket-frame, and another string-frame with a new playing surface can be inserted into the racket-frame and secured by fastening means.

3,707,289
PLURALITY OF ENCLOSURES EACH CONTAINING A NUMERICAL INDICIA ELEMENT

Carl Q. Wicks, Route 2, Long Lake, Minn.

Filed Nov. 27, 1970, Ser. No. 93,114
Int. Cl. A63b 71/06
U.S. Cl. 273—139 8 Claims



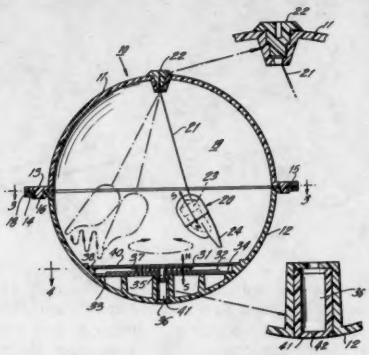
A game comprising a plurality of simulated clam shell enclosures, with each enclosure having a plurality of walls including a cover wall and defining an enclosure cavity. Simulated pearls are confined within the cavity and have numerical indicias thereon representing a numerical value. A hinge is provided for each simulated clam shell, with the hinge being biased into first and second stable positions, and being arranged to close said cover wall in one of said stable positions, and hold said cover wall open in the second stable position. In addition, holes or weights are provided for maintaining the density of the enclosures, while in water, at a value substantially greater than 1.

3,707,290
ANSWER BOARD WITH MAGNETICALLY INFLUENCED POINTER

Melvyn Birnkrant, Beacon, N.Y., assignor to Colorforms, Norwood, N.J.

Filed June 10, 1971, Ser. No. 151,833
Int. Cl. A63f 9/18; A63h 33/26
U.S. Cl. 273—141 A 7 Claims

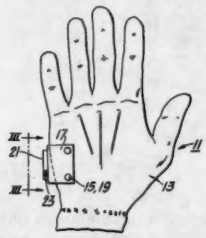
An amusement device is constructed with a pointer suspended above an answer board. The pointer is secured to the lower end of a flexible filament whose upper end is supported at a vertical axis passing through the center of the answer board. A disc-like permanent magnet positioned immediately below the answer board cooperates with a permanent magnet mounted to the pointer, in that the flux fields of the magnets interact, so that the pointer is repelled thereby being directed toward the periphery of the answer board. The edges of the disc magnet are notched so that the flux lines are not uniformly distributed and because of this free swing of the pointer is broken as it seeks to find an equilibrium position, and pointer motion is erratic so that the pointer appears to jump.



3,707,291
GOLF SWING TRAINING GLOVE INCLUDING LIGHT PROJECTING DEVICE

Wynn B. Tredway, P.O. Box 130, Freeport, Pa.

Filed July 21, 1971, Ser. No. 164,598
Int. Cl. A63b 69/36
U.S. Cl. 273—183 B 7 Claims



A glove of the type worn by golfers includes a light attached to or incorporated in the glove with a lens that projects an indicia on a wall at a prescribed location when a golf pupil wearing the glove and holding a club has his hands and club in the correct position at the top of the backswing. The rays of light are projected in the plane of the glove and substantially perpendicular to the fingers of the glove.

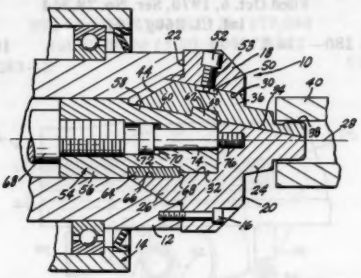
3,707,292
MULTI-JAW CHUCK

London T. Morawski, Mt. Clemens, and John J. Parker, Warren, both of Mich., assignors to The John J. Parker Living Trust, by said Parker

Filed Dec. 24, 1970, Ser. No. 101,210
Int. Cl. B23b 31/10
U.S. Cl. 279—110 6 Claims

A chuck having a plurality of jaw carrying rods slidably arranged within bores inclined relative to the chuck axis. The

rods may be axially shifted in opposite directions to thereby increase and decrease the diameter of the circle defined by the jaws for gripping and releasing the peripheral surface of a

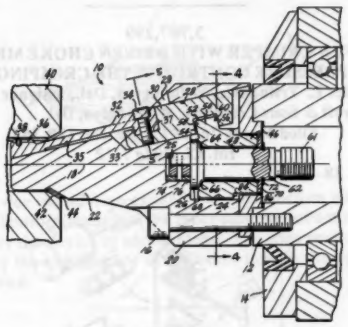


workpiece. The rods are insertable and removable from the front of the chuck and after insertion are operatively connected to an actuator slide within the chuck by rotary indexing of the rods within their respective bores.

3,707,293
MULTI-JAW CHUCK

London T. Morawski, Mount Clemens, and John J. Parker, Warren, both of Mich., assignors to The John J. Parker Living Trust, by said Parker, a part interest

Filed Dec. 24, 1970, Ser. No. 101,209
Int. Cl. B23b *31/10*
U.S. Cl. 279—110 **20 Claims**



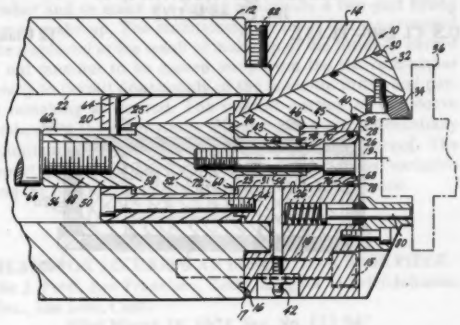
A chuck having a plurality of jaw carrying rods axially movable within bores inclined relative to the chuck axis. The rods may be axially shifted in opposite directions by a jaw actuator to thereby increase and decrease the diameter of the circle defined by the jaws for engaging and disengaging the peripheral surface of a workpiece. If the peripheral surface of the workpiece is either out of round or eccentric, one of the jaws is moved axially relative to another to ensure that all the jaws grip the workpiece. A plurality of guideways formed in the forward external surface of the chuck guide the jaws and render them accessible for quick replacement.

3,707,294
MULTI-JAW CHUCK

London T. Morawski, Mt. Clemens, and John J. Parker, Warren, both of Mich., assignors to The John J. Parker Living Trust, by said Parker, a part interest

Filed Dec. 24, 1970, Ser. No. 101,212
Int. Cl. B23b *31/10*
U.S. Cl. 279—110 **9 Claims**

A chuck having a plurality of jaw rods arranged within bores inclined relative to the axis of the chuck. The jaw rods may be moved axially in opposite directions to decrease and increase the diameter of the circle defined by the chuck jaws to thereby engage and disengage the peripheral surface of a workpiece. The rear portions of the rods are interengaged with a jaw ac-

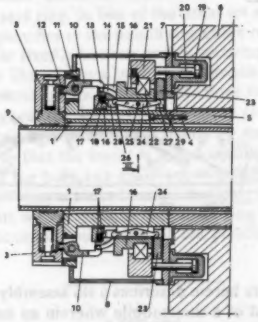


tuator by means of a plug which is insertable and removable through a central bore in the front of the chuck. Removal of the plug from the chuck enables the jaw rods to be removed from the front of the chuck.

3,707,295
MANDREL FOR MACHINE TOOL

Gerard G. Vennin, Chaville, France, assignor to CRI-DAN, Paris, France

Filed Oct. 8, 1970, Ser. No. 79,049
Claims priority, application France, Dec. 15, 1969, 6943284
Int. Cl. B23b *31/16*
U.S. Cl. 279—119 **7 Claims**



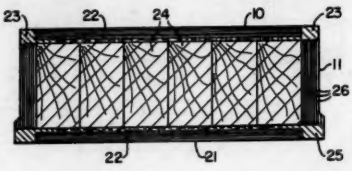
A mandrel for a machine tool comprising a body having a plurality of locking jaws radially floatably mounted therein. The mandrel includes a mechanism for compensating for eccentricity of a workpiece retained by the mandrel, which mechanism includes a floating ring mounted on a sleeve, both of which are adapted to slide longitudinally relative to the body. The ring is provided with a plurality of inclined ramps, each of which cooperate with a respective lever to operate the locking jaws during longitudinal movement of the ring. The mandrel also includes a balancing device to compensate for the eccentric weight of the ring when same is eccentrically positioned relative to the mandrel axis.

3,707,296

MODIFIED PHENOLIC RESIN SYSTEM AND LAMINATES MADE THEREFROM

Salvatore E. Palazzolo, Hampton, and Harold O. McCaskey, Allendale, both of S.C., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Jan. 9, 1970, Ser. No. 1,749
Int. Cl. A63c 5/12
U.S. Cl. 280—11.13 L 12 Claims



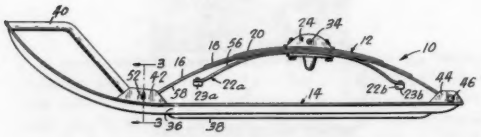
A laminate, that can be used as an exterior, refinishable surface for snow skis, comprises a plurality of plastic resin impregnated bonded paper sheets, each having been impregnated with a solution of a melamine-formaldehyde, phenol-formaldehyde resinous admixture which contains from about 10 to 70 weight percent melamine-formaldehyde resin solids based on phenol-formaldehyde resin solids.

3,707,297

SPRING UNIT FOR SNOWMOBILE SKI RUNNER ASSEMBLY

Jules Perreault, and Claude Lemieux, both of Valcourt, Quebec, Canada, assignors to Bombardier Limited, Valcourt, Quebec, Canada

Filed Nov. 16, 1970, Ser. No. 89,664
Claims priority, application Canada, Nov. 6, 1970, 097,634
Int. Cl. B62b 17/04
U.S. Cl. 280—25 10 Claims



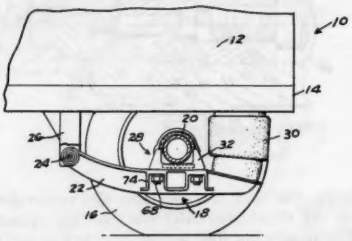
The disclosure herein describes a ski assembly for mounting at the front end of a snowmobile wherein an auxiliary spring leaf has been added underneath the conventional spring leaf unit to provide to the ski assembly a double constant feature. In one embodiment, the auxiliary spring leaf has its central portion fastened to the central portion of the main spring leaf and its opposite end portions spaced from adjacent portions on the main spring leaf. In a second embodiment, the auxiliary spring leaf extends directly over the upper face of the ski runner with one end secured to the ski runner and the other end slidably bearing thereon. Both embodiments provide a much smoother springing action to the ski assembly because, in both cases, the auxiliary spring leaf is flexed only after an initial deflection of the original spring leaf unit or after the loads imparted on the ski assembly have exceeded a predetermined value.

3,707,298

SUSPENSION STRUCTURE FOR LAND VEHICLES

O. Lee Henry, and William C. Pierce, both of Muskegon, Mich., assignors to Lear Siegler, Inc., Santa Monica, Calif.

Filed Oct. 6, 1970, Ser. No. 78,364
Int. Cl. B60g 7/04
U.S. Cl. 280—124 R 10 Claims



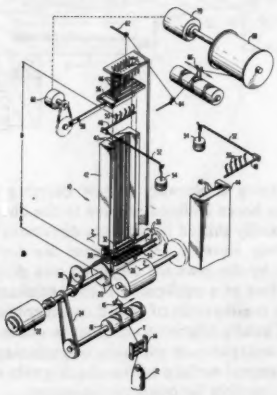
Lateral projection on each end of an axle is rockable under torsion forces within a receptacle on each of two vertically swinging control arms. Rocking is yieldably resisted by elastomer material between the end of the projection and bottom of the receptacle. The projection end is curved to provide greater elastomer thickness where greatest deflection occurs. Apposed sides of projection and receptacle interengage to limit the range of rocking movement.

3,707,299

STUFFER CRIMPER WITH DRIVEN CHOKE MEMBERS FOR PRESSURE CONTROL IN THE CRIMPING ZONE

Alexander L. Trifunovic, Wilmington, Del., assignor to Joseph Bancroft & Sons Company, Wilmington, Del.

Filed March 26, 1971, Ser. No. 128,363
Int. Cl. D02g 1/12
U.S. Cl. 28—1.6 11 Claims



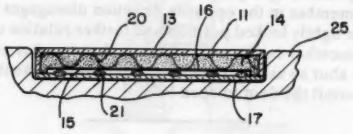
A stuffer crimper fed with yarn from a pair of feed rolls having a chamber defining a crimping zone adjacent the feed rolls followed in succession by a heating zone and a cooling zone where the pressure on the yarn core within said crimping zone and the pressure on the core passing through the succeeding heating and cooling zones are independently controlled by roller means having core gripping surfacing projecting into said chamber at the juncture of said crimping and heating zones, said roller means being mounted and driven to rotate parallel to the axes of said feed rolls at a speed related to the speed of said feed rolls.

3,707,300

TAMPERPROOF SERIAL NUMBER

Robert J. Tamburro, 1273 Trapelo Road, Waltham, Mass., and Ronald N. Ohanian, 16 Whites Avenue, Watertown, Mass.

Filed Sept. 1, 1971, Ser. No. 177,044
Int. Cl. B42d 15/00; B09f 17/00
U.S. Cl. 283—8 5 Claims



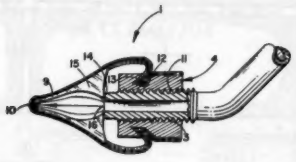
A serial number is imprinted on a chemical saturated tape encapsulated in plastic and surrounded by another preselected chemical in turn enclosed in a plastic container and affixed to an automobile or other item of personal property—said serial number will be destroyed due to intermixing of the chemicals when the serial number is tampered with.

3,707,301

ADJUSTABLE ADAPTER

James M. Rauls, 11642 Eudora Lane, Garden Grove, Calif.

Filed June 3, 1970, Ser. No. 43,098
Int. Cl. F16l 25/00
U.S. Cl. 285—9 R 8 Claims



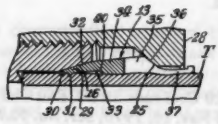
The device includes an expandable cone section which adjusts into conformation with the inner diameter of a tube being coupled by the device to another tube. The cone section is expanded by the engagement of the other tube in the open end of the device.

3,707,302

HIGH PERFORMANCE FITTING

Jan A. Hiszpanski, Chicago, Ill., assignor to I-T-E Imperial Corp.

Continuation-in-part of Ser. No. 774,920, Nov. 12, 1968, abandoned. This application Aug. 27, 1970, Ser. No. 67,512
Int. Cl. F16l 19/08
U.S. Cl. 285—116 7 Claims



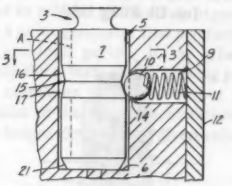
A tube fitting having a deflectible sleeve member arranged to be constricted by a nut member advanced toward a body member to sealingly bite into the outer wall of a tube end and sealingly engage the body member to provide a high performance tube fitting. The sleeve member includes biting means on the nose portion adjacent the body member and constrictible tube supporting means spaced substantially outwardly from the nose portion to provide an improved support of the tube at a distance from the seal. The sleeve member further includes means cooperating with the nut member for maintaining the sleeve member in association with the nut member prior to make-up of the fitting thereby to assure the proper disposition of the sleeve member relative to the nut member and to make the fitting effectively a two-part fitting prior to make-up. The maintaining means is further arranged to be displaced as the result of make-up of the fitting to permit the nut member to be moved away from the sleeve member thereby to permit disassembly of the made-up fitting and permit remaking as desired. The support portion of the sleeve member and the maintaining means may be circumferentially discontinuous to provide facilitated deflection thereof. The support means further provides a gradual stress variation along the tube to provide improved vibration resistance.

3,707,303

MEANS FOR SECURING AN INSERT TO A BASE PIECE

Nello J. Petri, San Francisco, Calif., assignor to Petri-Johnson, Inc., San Jose, Calif.

Filed March 10, 1971, Ser. No. 122,947
Int. Cl. F16b 1/00
U.S. Cl. 287—20.3 3 Claims



Means for removably securing an insert element to a larger base piece. The invention as disclosed solves the problem of securing an insert element such as a punch to a larger base piece such as a punch ring. The invention is particularly applicable to a rotary punch of the type having a rotating punch ring with punch elements removably secured around the periphery of said ring. In lieu of the usual set screw method of securing the punches to the punch ring quick releasable means is provided for fixedly but removably securing the shank of a punch or the like within a bore in the punch ring. The cross sectional contour of the shank or the bore is formed so that the shank engages the bore at two points in cross section. The shank is forced against said two points by means of a spring pressed ball so that the insert is urged simultaneously against the bottom of the bore and against the two points. The "three point support" thus achieved insures not only optimum stability of the insert with respect to the punch ring but also permits extremely accurate positioning of the punch relative to the punch ring.

3,707,304

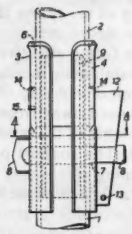
BUILDERS' SCAFFOLDING

Peter Eric Gostling, Sutton Coldfield, England, assignor to Kwikform Limited, Birmingham, England

Filed Sept. 8, 1970, Ser. No. 70,088
Int. Cl. F16b 7/04
U.S. Cl. 287—111 8 Claims

Builders' scaffolding comprising means for securing two scaffolding uprights together in alignment including a split outer sleeve transversely pinned to the end of one upright to form a socket which grips the end of another upright when the pinning is tightened by means such as a wedge. The socket may be flared and may include an inner sleeve preferably shorter in the first upright. Pinning may be by means of a pin

with a tee head aligned in a longitudinal groove in the outer sleeve and slotted to take a wedge parallel to the tee head. The wedge is preferably captive, tightened by driving it downwardly, and rotatable with the pin when loose to hang



downwardly. A tension connection to permit assembled scaffolding to be crane lifted may be provided in addition by radial stud and hole engagement between the outer sleeve and the gripped end of the inserted upright.

3,707,305

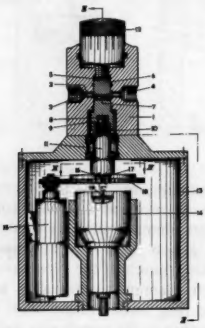
AUTOMATIC SPRAY FLUID CONTROL DEVICE

Petrus Johannes Alloysius de Kinkelder, 42, Zuiderlaan, Zevenaar, Netherlands

Filed Feb. 17, 1971, Ser. No. 116,060

Int. Cl. B05g *1/30*

U.S. Cl. 239—62 **7 Claims**



An automatic fluid control device designed to be combined with spray apparatus for controlling the flow of insecticide, fertilizer and the like is provided. The fluid control provides a valve responsive to a manual control and an automatic control governed by the speed of the vehicle carrying the spray apparatus. A pair of scanners correlates the vehicle speed with the spray flow by causing the valve plug to meter the flow as it rotates. The manual control displaces the valve plug along its longitudinal axis to provide a cumulative control of the fluid flow.

3,707,306

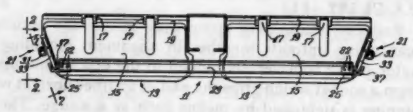
HOPPER CAR DOOR LOCK

Vaughn T. Hawthorne, Mechanicsburg, Pa., assignor to Keystone Industries, Inc., Chicago, Ill.

Filed Dec. 4, 1970, Ser. No. 95,092

Int. Cl. E05c *5/00*, *19/12*

U.S. Cl. 292—113 **7 Claims**



A lock for a railway hopper car having a hinged door. The lock comprises a pivotable eccentric member to which is pivotably and eccentrically mounted at latch which engages a lug to hold the car door either loosely or tightly closed. The lug is mounted on the door and loosely engages the latch, which is on the door frame, when the door is swung out. Cam surfaces on the latch and lug cause engagement of the latch and lug. The eccentric member can be rotated to draw the door tightly closed. Rotation of the eccentric member engages the latch in a tightly locked, over-center position on the lug, and the latch and eccentric member can be held in the tightly locked position by a pivotable cam lock. Rotation of the eccentric member in the opposite direction disengages the latch from the tightly locked position and further rotation of the eccentric member causes projections on that member and on the latch to abut so as to lift the latch out of engagement with the lug to permit the door to open fully.

3,707,307

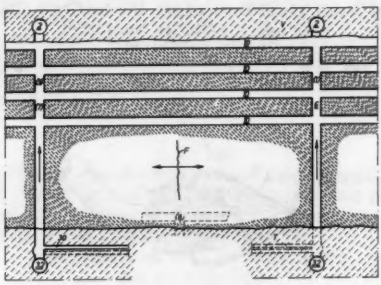
METHODS IN MINING BY SUBLEVEL CAVING

Harry Kristoffersson, Kampementsgatan 34, 115 38 Stockholm, and Sune Torsten Henriksson, Lingonstigen 2, 981 00 Kiruna, both of Sweden

Filed Dec. 11, 1970, Ser. No. 97,188

Int. Cl. E21c *41/00*

U.S. Cl. 299—12 **10 Claims**



A method in mining by sublevel caving in which in a development phase are driven haulage drifts or shafts and from said drifts or shafts are driven cross-cuts in an orebody with a spacing vertically and horizontally suitable from an economical and technical point of view, from which cross-cuts one or more longitudinal drifts are driven in said orebody, wherein said cross-cuts are driven straight through said orebody and into the rock wall at the opposite side thereof, where said cross-cuts are connected with upwardly directed ventilation shafts, and vertically adjacent pairs of discs are connected with these shafts and/or haulage drifts or shafts and associated ventilation means in such a way, that the upper disc then during the mining can be put under considerable sub-atmospheric pressure, while the lower disc can be put under suitable, comparatively moderate positive pressure by entering fresh air, whereby an essentially continuous mining of said orebody is allowed.

3,707,308

WHEEL DEVICE

Herman Smith, 620 Cochrane Street, Eau Claire, Wis.

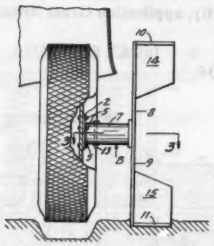
Filed Nov. 18, 1970, Ser. No. 90,635

Int. Cl. B60b *15/22*

U.S. Cl. 301—44 R **2 Claims**

A device for attachment to an automobile wheel to assist in driving the automobile out of snow, mud or other material in which the automobile may be stuck. The device includes a means for attaching radial arms to the outerface of an automobile wheel so that the radial arms extend, parallel to the face of the wheel, approximately to the periphery of the tire on the

wheel. The radial arms are provided, at their ends, with heel elements which will grip the surface upon which the automobile rests. As the automobile wheel is caused to turn, the device will then serve to "lift" the automobile from its stuck position.



3,707,309

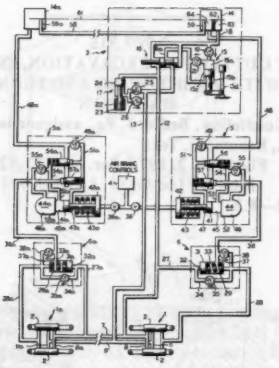
HYDRAULICALLY OPERATED HAND BRAKE - SERVICE BRAKE SYSTEM FOR RAILWAY CARS

Thomas H. Engle, Cape Vincent, N.Y., assignor to General Signal Corporation

Filed June 4, 1971, Ser. No. 150,054

Int. Cl. B60t *17/16*

U.S. Cl. 303—13 **5 Claims**



The disclosure concerns fluid operated brake systems for railway cars incorporating hydraulic brake cylinders which serve both service braking and hand braking functions. The brake cylinders on both trucks are operated by a single hand brake control unit, but are embodied in separate service brake circuits supplied with hydraulic fluid from two reservoirs, one of which also supplies the hand brake circuit. The reservoirs are interconnected so as to permit maximum utilization of the total volume of hydraulic fluid without depleting either below the minimum level required to satisfy the demands of the equipment it supplies. Preferably, the reservoir which serves the hand brake and one service brake is divided to provide separate sources for these circuits.

3,707,310

ANTI-LOCK BRAKE SYSTEM WITH VARIABLE RATE BRAKE PULSING

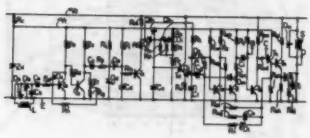
Denis Sharp, East Grinstead, England, assignor to U.S. Philips Corporation

Filed Aug. 21, 1970, Ser. No. 65,800

Claims priority, application Great Britain, Aug. 22, 1969, 42,083/69

Int. Cl. B60t *8/12*

U.S. Cl. 303—21 CG **12 Claims**



A control circuit for a vehicle anti-lock brake system that includes a wheel sensor that produces electric signals proportional to the wheel speed, a control circuit responsive thereto to produce an electrical output when the wheel deceleration exceeds a given value, and a control valve responsive to said electrical output to release the braking pressure. The control circuit includes a pulse generator that produces a series of pulses during an anti-lock period. If the wheel continues to decelerate despite the release of the braking pressure, then the control circuit continues to supply output pulses at a rate which is a function of the wheel deceleration until the wheel deceleration no longer exceeds said given value.

3,707,311

ANTI-LOCK BRAKE SYSTEMS FOR WHEELED VEHICLES

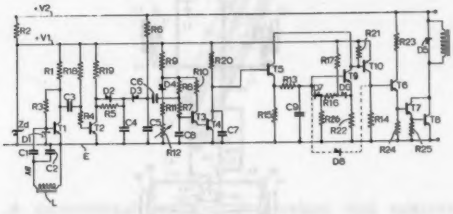
Denis Sharp, East Grinstead, England, assignor to U.S. Philips Corporation

Filed Aug. 19, 1970, Ser. No. 65,163

Claims priority, application Great Britain, Aug. 22, 1969, 42,022/69

Int. Cl. B60t *8/12*

U.S. Cl. 303—21 CG **8 Claims**

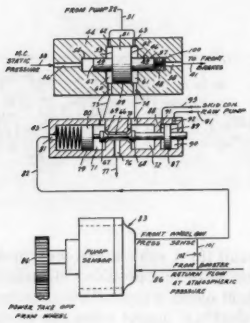


An anti-lock vehicle brake control system includes a control circuit that energizes the brake solenoid when the wheel deceleration exceeds a reference value. The normal energization period of the solenoid is determined by the time it takes for the released wheel to again reach the reference value speed. On a slippery road it takes longer for the wheel to reach the reference value. When the normal energization period exceeds a given time period indicative that braking occurs on a slippery road, the control circuit extends the period of solenoid energization so that the wheel speed approximates the vehicle speed before the brakes are reapplied.

3,707,312
FOUR WHEEL SKID CONTROL SYSTEM WITH DYNAMIC PROPORTIONING

Gilbert H. Drutchas, Birmingham; Rupert L. Atkin, Grosse Pointe Woods, both of Mich., and Garrett D. Shaw, Rolling Hills, Calif., assignors to TRW Inc., Cleveland, Ohio

Filed Jan. 22, 1971, Ser. No. 108,848
Int. Cl. B60t 8/06, 8/12
U.S. Cl. 303—21 F 10 Claims

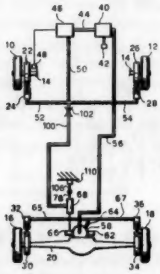


Dynamic pressure control means responsive to differences in the front and rear wheels speeds apply more or less pressure to the front brake actuating motors thereby to maintain an optimum relationship of front-to-rear wheel slip.

3,707,313
ANTI-SKID BRAKING SYSTEMS

Giancarlo Michellone, Cambiano; Mario Palazzetti, and Giovanni Tabasso, both of Turin, all of Italy, assignors to Fiat Societa per Azioni, Turin, Italy

Filed Jan. 6, 1971, Ser. No. 104,372
Claims priority, application Italy, Jan. 13, 1970, 67084-A/70
Int. Cl. B60t 8/10, 8/18
U.S. Cl. 303—21 A 3 Claims

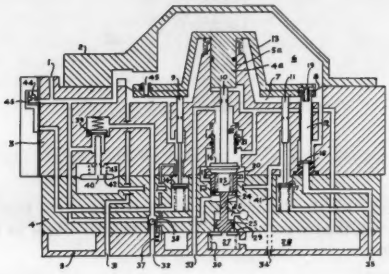


A vehicle braking system has an anti-skid device which periodically interrupts the supply of pressure fluid to the brake of a first wheel on a first axle. A second wheel on a second axle is equipped with known means to vary the braking effort on that second wheel in accordance with the load on the second axle. The invention provides means to vary the supply to the brake of the second wheel in accordance with fluctuations induced by the anti-skid device in the supply to the brake of the first wheel.

3,707,314
BRAKE CONTROL VALVE APPARATUS

Philip Norman Paginton, London, England, assignor to Westinghouse Brake and Signal Company Limited, London, England

Filed Feb. 16, 1971, Ser. No. 115,650
Claims priority, application Great Britain, March 19, 1970, 13,301/70
Int. Cl. B60t 15/52
U.S. Cl. 303—36 14 Claims

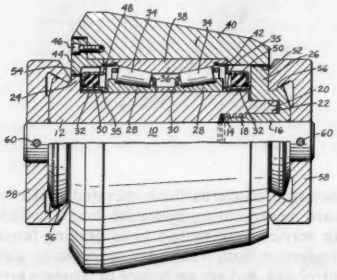


An improved form of triple valve for brake control applications has a quick service bulb and quick service exhaust and inlet valves so arranged that following initiation of a brake application, and movement of the main pile of the triple valve, the bulb inlet valve opens before the exhaust valve closes thereby dumping a small amount of brake pipe pressure but on the bulb pressure building up, a special pressure responsive conditioning device is operated to bring the quick service valve closure member and seat closer together to ensure that on movement towards lap position or release position of the main pile, the bulb inlet valve is sealed off before the bulb exhaust valve which has a slidable spring loaded seat, opens. This ensures that loss of recovering brake pipe pressure does not occur between the bulb inlet and exhaust valves on release of the brake.

3,707,315
ROTARY CUTTER FOR EXCAVATION, ESPECIALLY FOR USE WITH RAISE BORING AND TUNNEL BORING MACHINES

Robert D. Goodfellow, Bedford, Pa., assignor to Subterranean Tools Inc., Beaumont, Tex.

Filed Feb. 2, 1971, Ser. No. 111,924
Int. Cl. F16c 19/38, 33/76, 35/06
U.S. Cl. 308—8.2 7 Claims



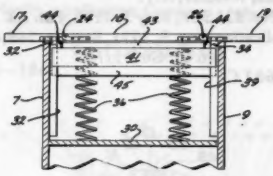
The specification discloses a rotary cutter, especially for use on tunnel boring or raise boring machines, for reducing formations to be excavated in which a rotary cutter body is rotatably supported on a nonrotatable central structure by special antifriction bearing means particularly characterized in the employment of a single ring for the outer race of both of a pair of antifriction bearings on which the cutter body is supported.

3,707,316

CONVERTIBLE END TABLE-DESK

Vennice E. Mark, 1576 Fisk Road S. E., Grand Rapids, Mich.

Filed March 9, 1971, Ser. No. 122,380
Int. Cl. A47b *21/00, 81/00*
U.S. Cl. 312—208 12 Claims



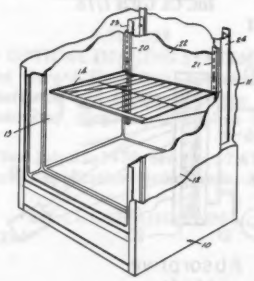
A typewriter stand and storage cabinet has a working surface on which a typewriter or other equipment can be placed. The working surface is slidably mounted on a carriage assembly which can be retracted into an enclosed storage compartment. A stabilizer depends downwardly from the carriage assembly and extends through an aperture in a bottom platform of the storage compartment when the carriage assembly is in its retracted position. The stabilizer interacts with the storage compartment sidewalls to provide the carriage assembly and associated working surface lateral stability as the carriage assembly is extended from and retracted into its stored position in the storage compartment.

3,707,317

CANTILEVER REFRIGERATOR SHELF

Daniel B. Dawley, and Roy V. Johnson, both of Galesburg, Ill., assignors to Admiral Corporation, Chicago, Ill.

Filed July 23, 1970, Ser. No. 57,701
Int. Cl. A47b *81/00*; F25d *11/00*
U.S. Cl. 312—214 1 Claim



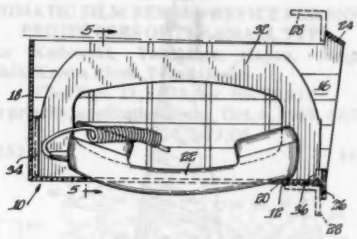
A refrigeration cabinet having an outer housing formed of sheet metal or similar material and an inner liner formed of a molded thermoplastic material. The inner liner is spaced from the outer housing and the space may be filled with an insulating material. The inner liner has substantial lateral flexibility and is generally insufficient to support the weight of refrigerator shelves. Shelf support members are positioned between the outer housing and the inner liner. Shelf attachment means such as an adjustable rack is then positioned against the inner surface of the molded liner and firmly secured directly to the shelf support member by means of fasteners which extend through the inner liner to the shelf support member. In this way, racks may be firmly supported within the refrigeration cabinet. The entire assembly gives sufficient rigidity to the shelf racks to support the shelves in a cantilever manner. In such an arrangement, only two shelf support means are required. Each of the shelf support means extend vertically at the rear of the refrigeration cabinet between the molded liner and the outer housing of the cabinet.

3,707,318

DRAWER RECEPTACLE

Donald E. Andrews, Schaumburg; Daniel C. Heck, Deerfield, and John A. Pestka, Park Ridge, all of Ill., assignors to Illinois Tool Works Inc., Chicago, Ill.

Filed July 10, 1970, Ser. No. 53,882
Int. Cl. A47b *88/04*; B65d *1/24*
U.S. Cl. 312—323 7 Claims



The present invention relates generally to improvements in drawer receptacles and more particularly to receptacles in the form of a drawer adapted to be supported by a frame structure in cantilever fashion. Flange means provided at the forward extremity of the drawer cooperate with horizontally spaced frame members to permit the drawer to tilt downwardly toward the rear extremity thereof thereby preventing unauthorized or unintentional withdrawal of the drawer from the frame structure. The particular embodiment disclosed herein is designed to accommodate telephone bases, head sets, and the like.

3,707,319

HANDLEBAR WITH REFLECTOR-RECEPTIVE RECESSED AREAS

Carlton P. Pawsat, and Robert F. Humlong, both of Maysville, Ky., assignors to Wald Manufacturing Company Incorporated, Maysville, Ky.

Filed Aug. 10, 1970, Ser. No. 62,451
Int. Cl. G02b *5/12*
U.S. Cl. 350—97 11 Claims

A conventional handlebar is provided with selectively recessed portions for the reception of reflective or decorative material for thereby enhancing the visibility and attention-arresting characteristics of the handlebar.

3,707,320

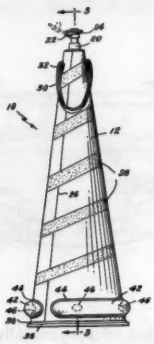
INFLATABLE AND COLLAPSIBLE PYLON

Howard Brynes, 36 Welch Road, Warwick, R.I.

Filed Nov. 9, 1970, Ser. No. 87,968
Int. Cl. G02b *5/12*
U.S. Cl. 350—97 2 Claims

An inflatable and collapsible pylon for use as a road warning or signal comprising a conical body portion having an inflating

opening and means for closing same, said body portion having a weighted base secured to the bottom thereof and handle means adjacent the top of said body portion whereby when the collapsed pylon is held by the handle, the weighted base will



cause it to unfold, and the pylon will simultaneously self-inflate to a substantial degree, the pylon further comprising means causing it to self-right if it should be tipped or knocked over.

3,707,321

MAGNETO-OPTICAL PROBE HAVING NATURAL BIREFRINGENCE ERROR COMPENSATION

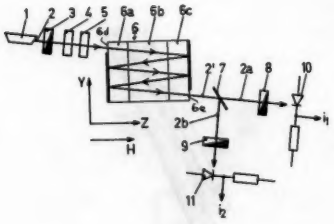
Andre Jaecklin, Ennetbaden, and Manfred Lietz, Wettingen, both of Switzerland, assignors to Aktiengesellschaft Brown, Boveri & Cie, Baden, Switzerland

Filed Jan. 27, 1971, Ser. No. 110,004

Claims priority, application Switzerland, Feb. 4, 1970, 1578/70

Int. Cl. G02f 1/22

U.S. Cl. 350—151 6 Claims



A magneto-optical probe is comprised of a composite magneto-optical solid medium subjected to a variable magnetic field and constituted by a plurality of plane parallel contiguous component parts and through which an elliptically polarized light beam of adjustable eccentricity and inclination is passed for multiple reflection within the medium. After issuing from the medium, the beam which is now again substantially linearly polarized and inclined by an amount proportional to the magnetic field is passed through an optical divider and the two parts of the beam are passed respectively through analyzers which produce two phase-shifted linearly polarized light signals that are then passed to photo-detectors which convert the light signals into corresponding electric signals for further electronic processing.

3,707,322

ELECTROSTATIC LATENT IMAGING SYSTEM USING A CHOLESTERIC TO NEMATIC PHASE TRANSITION

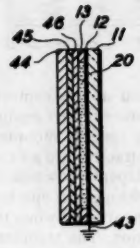
Joseph J. Wysocki, 544 Crest Circle; James E. Adams, 528 Forest Lawn Road, both of Webster, N.Y.; James H. Becker, 212 Gebhardt Road, Penfield, N.Y.; Robert W. Madrid, 160 Jacobs Road, Macedon, N.Y., and Werner E. L. Haas, 822 Westwood Trail, Webster, N.Y.

Division of Ser. No. 821,565, May 5, 0196, Pat. No. 3,652,140.

This application Aug. 5, 1971, Ser. No. 169,458

Int. Cl. G02f 1/16

U.S. Cl. 350—160 LC 3 Claims



A system transforming an optically negative liquid crystalline substance to an optically positive liquid crystalline mesophase by an applied electrical field, and an imaging system wherein the electrical field-induced transition images a liquid crystalline member.

3,707,323

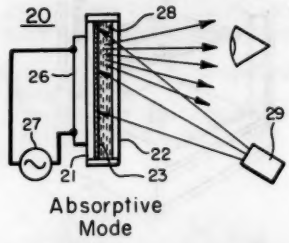
LIQUID CRYSTAL DEVICES AND SYSTEMS FOR ULTRASONIC IMAGING

Lawrence W. Kessler, 418 Warren Road, Glenview, Ill., and Samuel P. Sawyer, 2915 Grant Street, Evanston, Ill., assignors to Zenith Radio Corporation, Chicago, Ill.

Filed Nov. 6, 1970, Ser. No. 87,553

Int. Cl. G02f 1/16

U.S. Cl. 350—161 9 Claims



A device is disclosed which includes a layer comprising a nematic liquid crystal toward which ultrasonic wavefronts are directed. A marked change over any particular area of the layer occurs from a clear state to a light-scattering state when the intensity of the ultrasound applied to that area exceeds a threshold value. The degree of light scattering obtainable is found to be functionally related to the intensity of the applied ultrasound above the threshold. A matrixed array of such devices is arranged in a system with suitable ultrasonic addressing means and scanning means to provide a real-time image display system having a gray-scale. A system for visualizing ultrasonic image information either conventionally or holographically is also provided by causing a sound beam carrying image information as well as a reference beam to impinge on a common area of such a device. The resulting pattern of ultrasonic intensity variations over the area causes light to be variably scattered from different points in the area in accordance with the ultrasonic intensity pattern, thereby rendering visible the analogue optical hologram of the image.

3,707,324

HIGH-SPEED VARIFOCAL OBJECTIVE SYSTEM WITH FIVE-LENS BASIC OBJECTIVE

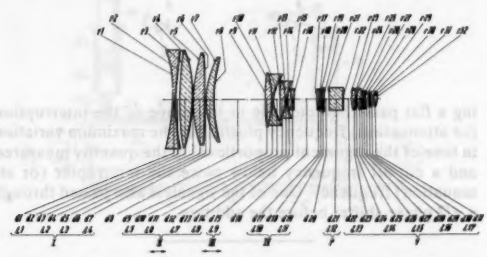
Karl Macher, bad Kreuznach, Germany, assignor to Jos. Schneider & Co. Optische Werke Kreuznach, Bad Kreuznach (Rhineland), Germany

Filed June 30, 1971, Ser. No. 158,439

Claims priority, application Germany, July 1, 1970, P 20 32 573.9

Int. Cl. G02b *15/16*

U.S. Cl. 350—184 2 Claims



A varifocal objective system with a relative aperture of 1 : 1.8 and a varifocal ratio of about 11 : 1 consists of a five-lens basic objective and a four-component vario attachment. The lenses of the basic objective are all singlets, the third and fourth lenses being dispersive. The attachment is composed of two axially movable negative components bracketed by two substantially fixed positive components; the first component, which may be limitedly shiftable (in whole or in part) for focusing purposes, includes a negative front lens and three positive singlets; the second compartment consists of two negative doublets; the third component is a meniscus-shaped singlet; and the fourth component consists of two air-spaced positive singlets.

3,707,325

OPTICAL IMAGING SYSTEM

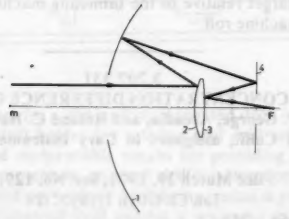
George Eduard Gerard Hardeman, deceased, late of Eindhoven, Netherlands, and Casper Antonius Henricus Mulkens, administrator, Hugo de Grootplein 35, Eindhoven, Netherlands

Filed July 23, 1970, Ser. No. 57,674

Claims priority, application Netherlands, Aug. 16, 1969, 6912510

Int. Cl. G02b *5/10, 17/06*

U.S. Cl. 350—294 4 Claims



An optical imaging system is described which includes a mirror system comprising a convex spherical mirror and an apertured concave spherical mirror having coincident principal axes. It is shown that by placing a plane mirror and a second convex spherical mirror in the path taken by the rays which emerge from the mirror system the focal distance can be increased, resulting in an acceptable light-shadow ratio with a non-excessively large aperture and also in a very good correction for spherical aberration.

3,707,326

AUTOMATIC FILM REWIND DEVICE FOR MOVIE PROJECTORS OF THE SMALL TYPE

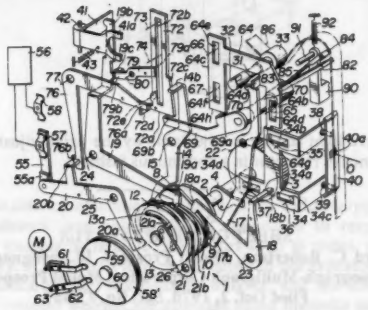
Tatsusuke Kadowaki, Yokohama, Japan, assignor to Kabushiki Kaisha Ricoh, Tokyo, Japan

Filed Sept. 21, 1970, Ser. No. 73,814

Claims priority, application Japan, Oct. 4, 1969, 44/79391

Int. Cl. G03b *23/00*

U.S. Cl. 352—124 10 Claims



An automatic film rewind device for movie projectors of the small type effects automatic rewinding of the film rsponsive to detection of tensioning of the film, wound on the shaft of a supply reel, at the terminating stage of film supply. The device further is operable selectively to effect single-frame projection, as well as projection of the film while moving in the rewind direction. Externally excessible operating means are manually operable to effect rewinding of the film. The device includes a control cam group movable between forward film feed, neutral and reverse film feed positions by an externally accessible control knob, and a control lever group is engaged with the control cam group. This control lever group sets the components of the projector to either feed film forwardly or to rewind film, and is locked in the forward feed film position by a holding member which is released responsive to the mentioned tensioning of the film in the last stage of film supply. A locking lever is operable to lock the control cam group in either the forward film feed position or the neutral position, and is released automatically responsive to such tensioning of the film.

3,707,327

MAGNIFIER WITH OPTICAL CONTRAST EQUALIZER

Josef Scheibel, Ober-Morlen, Germany, assignor to Braun A.G., Frankfurt/Main, Germany

Filed Aug. 5, 1970, Ser. No. 61,103

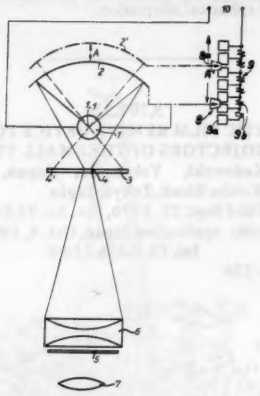
Claims priority, application Germany, Aug. 16, 1969, P 19 41 804.3

Int. Cl. G03b *27/16, 27/76*; F21v *7/00*

U.S. Cl. 355—71 5 Claims

A magnifying apparatus having a projection lamp with a preferably small filament, a concave reflector mounted for movement along the optical axis of the apparatus, a transparent medium mounted in the path of the light rays produced by the projection lamp, the concave reflector forming an

image of the filament on the transparent medium which image serves as the effective light source, the planar expansion of the

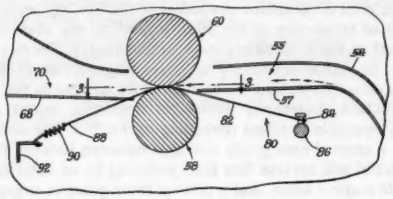


effective light source is adjustable by the axial adjustment of the concave reflector in a continuous fashion.

3,707,328
SHEET GUIDE APPARATUS

Richard C. Robertson, Mount Prospect, Ill., assignor to Addressograph-Multigraph Corporation, Mount Prospect, Ill.

Filed Oct. 2, 1970, Ser. No. 77,669
Int. Cl. G03b *27/30*
U.S. Cl. 355—106 **2 Claims**



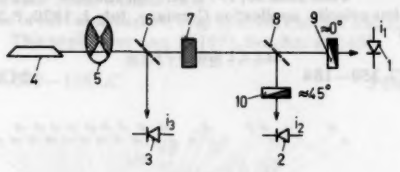
A guide arrangement for guiding sheet material through a developer unit over and in contact with a roller, the surface of which is wetted with a liquid developer solution, includes a plurality of fine, filament-like guide wires strung taut across the roller in the direction of movement of the sheet material. The wires prevent the sheet material from becoming wrapped about the roller member.

3,707,329
APPARATUS FOR ELECTRONICALLY ANALYZING MODULATED LIGHT BEAMS

Andre Jaecklin, Ennetbaden; Jiri Mastner, Niederrohrdorf, and Friedrich K. von Willisen, Zurich, all of Switzerland, assignors to Aktiengesellschaft Brown, Boveri & Cie, Baden, Switzerland

Filed Feb. 17, 1971, Ser. No. 116,176
Claims priority, application Switzerland, Feb. 25, 1970, 2794/70
Int. Cl. G01n *21/40*; G01r *31/00*
U.S. Cl. 356—117 **8 Claims**

Apparatus for analyzing a light beam modulated by a quantity to be measured in which two parallel electrical signals are derived from the modulated beam, the signals being shifted in phase relative to each other and being described by functions with a sine or cosine with an argument proportional to the quantity being measured. These signals are then added to produce a phase-modulated signal proportional to the measurement. To avoid errors in measurement due to an inherent drift effect in the photo-detectors on which the electrical signals appear, the beam of light is periodically interrupted (or attenuated) independently of the modulation effect produced by the quantity being measured and each of the electrical signals prior to the addition step is passed through a filter hav-

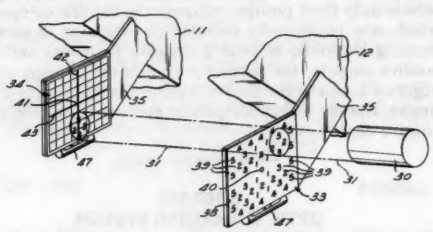


ing a flat pass characteristic in the range of the interruption (or attenuation) frequency plus/minus the maximum variation in time of the argument proportional to the quantity measured and a cut-off frequency below twice the interrupter (or attenuation) frequency. One of the signals is also passed through a $\pi/2$ phase-shifter before the addition.

3,707,330
LIGHT BEAM GUIDING DEVICE

Marmon Pine, Des Plaines, Ill., assignor to Jarva, Inc., Solon, Ohio

Filed Feb. 5, 9171, Ser. No. 112,953
Int. Cl. G01b *11/27*
U.S. Cl. 356—153 **8 Claims**



A light beam guiding device for a tunneling machine includes a light source for emitting a beam of light, a first target, and a second target. The first target includes means for passing a light pattern to the second target which is dependent upon the position of the first target relative to the light beam. The second target includes means for indicating the location of the light pattern thereon. Proper alignment of the tunneling machine relative to the light beam is determined by a predetermined light pattern from the first target falling on a predetermined location of the second target. Each target is mounted on the tunneling machine by a mounting means, each of which includes a means to adjustably position its associated target relative to the tunneling machine to compensate for machine roll.

3,707,331
CONCENTRATION DIFFERENCE CELL

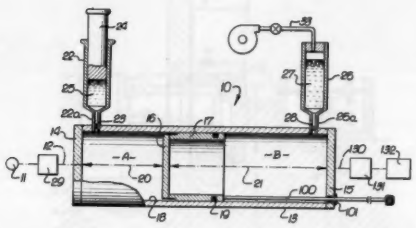
Kenyon P. George, Arcadia, and Roland C. Hawes, Monrovia, both of Calif., assignors to Cary Instruments, Monrovia, Calif.

Filed March 29, 1971, Ser. No. 129,031
Int. Cl. G01n *1/10, 21/24*
U.S. Cl. 356—246 **20 Claims**

A concentration difference cell adapted for use with spectrophotometer apparatus producing a light beam, the cell comprises:

a. first and second chambers including windows located to pass the beam transmitted successively through the chambers,

b. said chambers having associated beam path dimensions, the beam path dimension of the first chamber being adapted to increase while the beam path dimension of the second chamber decreases and in response to movement of at least one window, whereby the volume of the first chamber remains proportional to the increase in the beam path dimension of the first chamber, and the sum of the beam path dimensions of the first and second chambers remains constant,



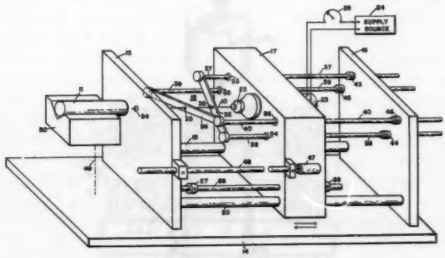
c. the chambers arranged in such relation that a predetermined quantity of a first liquid in the first chamber may be diluted by introduction into the first chamber of a quantity of auxiliary liquid accompanied by movement of said one window toward the second chamber containing second liquid, the refractive index of the liquid in the first chamber being kept substantially equal to the refractive index of the second liquid so long as said beam path dimension of the first chamber is an appreciable part of said sum.

3,707,332

DRILLING FIXTURE FOR A DIMINUTIVE ELONGATED DRILL

Fred K. Wolf, 3562 W. 147th Street, Cleveland, Ohio

Filed May 18, 1970, Ser. No. 38,404
Int. Cl. B23b *49/00*
U.S. Cl. 408—143 **20 Claims**



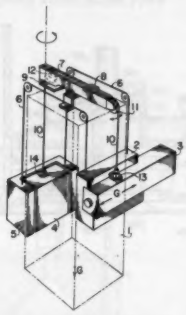
Drilling fixture for a diminutive, elongated drill, including a rotary driven drill holder for rotating said drill relative to a work-piece and reciprocable means for providing a relative reciprocal movement in an axial drilling direction between said drill and said work-piece. Stabilizing means is provided to stabilize the elongated drill against a whipping motion and comprises at least first and second drill support means mounted in axial alignment with respect to each other between said drill holder and said work piece for radially supporting said elongated drill along its axis. At least one of said drill support means is movable along the axis of the drill to vary the axial spacing between said drill support means.

3,707,333

HEADSTOCK BALANCING CONSTRUCTION FOR MACHINE TOOLS

Tetsuo Kitamura, and Akira Tamai, both of Hiroshima, Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan

Filed July 13, 1970, Ser. No. 54,150
Int. Cl. B23b *47/26*
U.S. Cl. 408—235 **8 Claims**



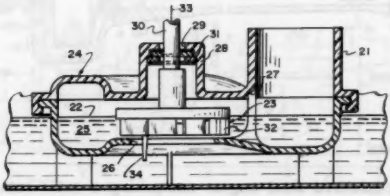
The headstock of a machine tool, and the saddle supporting the headstock, are independently connected to respective counter weights by flexible connectors such as ropes, chains, or the like. A column is interposed between the headstock and saddle assembly and the counter weights, and the assembly and the counter weights are movable along opposite surfaces of the column. An arm is supported at the top of the column and has a tubular pivot at one end and which has a vertical axis, and bearing means are provided between the top of the column and an intermediate portion of the arm. The arm carries two pulleys, one at each end, over which the connecting element for the headstock extends. A first joint connects one end of the connecting element to the counter weight and can perform correction movements in one direction, and a second joint connects the opposite end of the connecting element to the headstock and can perform correction movements in three dimensions.

3,707,334

WATER PUMP WITH AIR LOCK BREAKING MEANS

Leonard W. Ohlsson, St. Paul, and Edward J. Von Arb, North St. Paul, both of Minn., assignors to Whirlpool Corporation

Filed Jan. 12, 1971, Ser. No. 105,834
Int. Cl. F03b *13/00*; B01f *5/16*; F04b *17/00*
U.S. Cl. 415—121 **7 Claims**

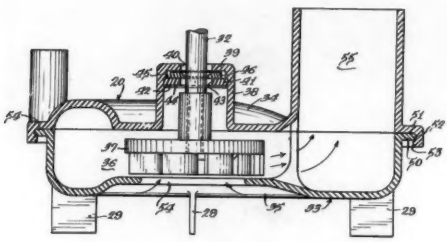


A water pump such as for use with a commercial ice maker wherein the pump is normally submerged but the operation of which is controlled in response to a condition of the system independent of the water level at the pump whereby air bubbles may form at the pump inlet due to a low level of water upon initiation of the pump operation. A breakup means is mounted on the impeller of the pump to project through the inlet to the pump for breaking up air bubbles that so form. The breakup means may comprise a pin member formed integrally with the impeller.

3,707,335
WATER PUMP

Walter C. Barnard, White Bear Lake, Minn., assignor to Whirlpool Corporation

Continuation of Ser. No. 813,536, April 4, 1969, abandoned.
This application Jan. 25, 1971, Ser. No. 109,687
Int. Cl. F01d 11/08; F16k 41/00; F04d 3/00
U.S. Cl. 415—170 A 2 Claims

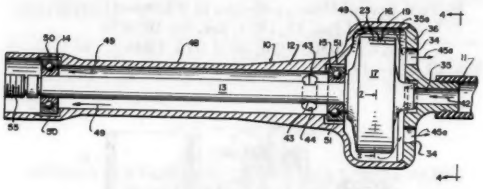


A water pump for a commercial ice maker comprising a high capacity pump with a relatively large water flow rate and having an improved seal for sealing a motor shaft where it enters the pump chamber to avoid substantial leakage and resulting loss in pumping pressure.

3,707,336
FLUID ENGINE

James V. Theis, Jr., Park Forest; John B. McCord, Evanston, and Harry H. Holly, Olympia Fields, all of Ill., assignors to Hollymatic Corporation

Filed Nov. 27, 1970, Ser. No. 93,288
Int. Cl. B63h 1/16; F01d 3/00; F04d 7/00
U.S. Cl. 416—186 3 Claims

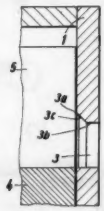


A pressurized fluid engine comprising a rotor rotatable about a central axis of rotation and within a casing, the rotor having a hollow interior bounded on substantially its entire inner periphery by at least one inclined surface substantially parallel to and facing the axis having a leading end with respect to the direction of rotation closer to the axis than its trailing end in order that outward fluid pressure on the surface or surfaces exerts a mechanical leverage inducing the rotation. The fluid on the interior of the rotor after applying this pressure on the inclined surfaces escapes freely through an exit that is substantially free of any fluid compressing flow restrictions.

3,707,337
LIQUID SEAL COMPRESSORS

Udo Segebrecht, Ellerbrook, Germany, assignor to Siemen & Hinsch mbH, Itzehoe/Holstein, Germany

Filed Feb. 23, 1971, Ser. No. 118,104
Int. Cl. F04c 19/00
U.S. Cl. 417—68 4 Claims

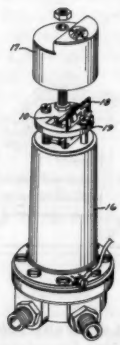


A liquid seal compressor has a vaned impeller which runs on one side of a distribution plate so that the cellular chambers between the vanes sweep a zone on said plate. Inlet and outlet apertures for working fluid and sealing liquid are formed within said zone in said plate. The edge between the radially outer boundary of the outlet aperture and the side of said plate facing the impeller is rounded or bevelled and preferably a narrow straight edge or chamfer is formed from said side of the plate to the start of the rounded or bevelled portion.

3,707,338
SOLENOID OPERATED PUMP

Michael H. Hilford, 511 Kings Road, Newport Beach, Calif.

Filed Jan. 29, 1971, Ser. No. 110,817
Int. Cl. F04b 35/04, 17/04; H02k 33/00
U.S. Cl. 417—416 3 Claims



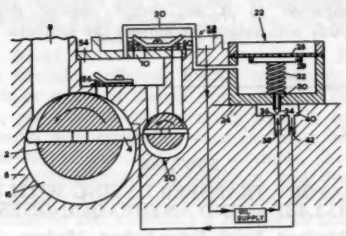
The present invention relates to an electric solenoid operated, diaphragm pump of the type having a mechanically operated electrical switch for controlling cyclical solenoid energization. Prior pumps of this class passed a large electrical current through the switch contacts, leading to premature switch failure. The present application discloses an electronic circuit that minimizes the electrical current flow through the switch contacts. It also discloses an optical arrangement for replacing the mechanically operated electrical switch.

3,707,339

VACUUM PUMPS

Leslie J. Budgen, Copthorne Bank, near Crawley, England, assignor to The British Oxygen Company Limited, London, England

Filed June 12, 1970, Ser. No. 45,879
Claims priority, application Great Britain, June 12, 1969, 29,908/69
Int. Cl. F01c *21/04*; F04c *27/02, 25/02*
U.S. Cl. 418—13 10 Claims



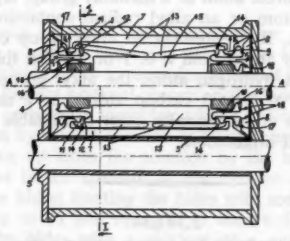
An oil sealed mechanical vacuum pump having stages has means for supplying oil to the pump through a duct that presents an impedance which is a function of the mean inlet pressure of the pumped gas except the first stage.

3,707,340

DEVICE FOR REDUCING LEAKAGE IN ROTARY ENGINES AT LOW RUNNING SPEEDS

Maurice Georges Brille, Nanterre, France, assignor to Societe Anonyme de Vehicules Industriels et d'Equipements Mecaniques, S.A.V.I.E.M., Paris, France

Filed Oct. 22, 1970, Ser. No. 82,869
Claims priority, application France, Oct. 23, 1969, 6936360
Int. Cl. F01c *19/02*; F03c *3/00*; F04c *27/00*
U.S. Cl. 418—115 7 Claims



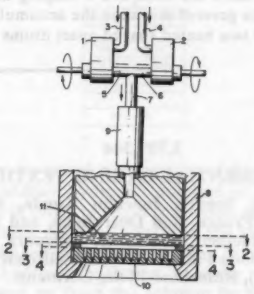
A device for reducing leakage between a rotor and a stator of a rotary engine at low running speeds is disclosed, the device comprising sealing elements at the end parts of the rotor teeth, adapted to come into frictional engagement with the internal surface of the stator at low speeds and to be disengaged in response to centrifugal forces, when the speed exceeds a predetermined value, the engine being then operated as a conventional engine of the gear type.

3,707,341

APPARATUS FOR MAKING MULTIFILAMENT YARNS

Wilhelmus J. Fontijn, and Korstiaan J. M. Van Drunen, both of Dieren, Netherlands, assignors to Akrona Incorporated, Asheville, N.C.

Division of Ser. No. 794,438, Sept. 27, 1960, Pat. No. 3,641,232, which is a division of Ser. No. 663,812, , Pat. No. 3,447,308. This application Sept. 14, 1970, Ser. No. 71,709
Claims priority, application Netherlands, Sept. 8, 1966, 6612628
Int. Cl. D01d *3/00*; B29b *1/04*
U.S. Cl. 425—198 7 Claims



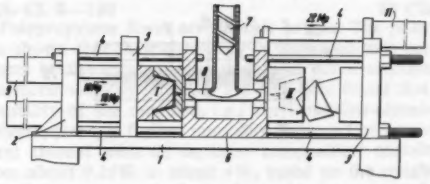
Reinforcing material for elastic articles and more particularly for automobile tires. The material is made up of multifilament synthetic linear high polymer yarns, each yarn having a plurality of filaments and each filament composed of at least two different polymers. One polymer functions as the matrix and the other polymer consists of a multiplicity of continuous cores having substantially the same length as, and being disposed uniformly throughout, the matrix. The cores are characterized by their uniformity in cross-sectional dimensions and by their substantially continuous nature. A novel apparatus is provided for making such filaments.

3,707,342

INJECTION MOLDING APPARATUS FOR FOAMED PLASTICS

Albert Lohmann, Niederkuchten, Germany, assignor to Mannesman-Meer Aktiengesellschaft, Monchengladbach, Germany

Filed Dec. 21, 1970, Ser. No. 100,234
Int. Cl. B29f *1/00*
U.S. Cl. 425—242 11 Claims



Two molds are spaced apart in tandem with a dual nozzle injection unit positioned therebetween to fill the two molds alternately. The cooling periods of the two closed molds overlap in time and while one mold is cooling the other one is opened, emptied of its molded part, closed again and injected with a new charge of plastic. During the cooling period of one mold the injection unit not only injects plastic into the other mold but also recharges for a new operating cycle.

3,707,343

MACHINE FOR PRODUCING ARTICLES FROM A STRIP OF EXTRUDED SYNTHETIC MATERIAL

Daniel Badoux, and Robert Carry, both of 112, rue Franklin Roosevelt, Decines, France

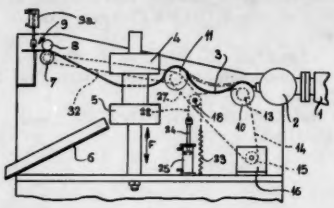
Filed Aug. 25, 1970, Ser. No. 66,727

Claims priority, application France, Aug. 26, 1969, 6929103

Int. Cl. B29f *3/00*

U.S. Cl. 425—394 4 Claims

A machine for producing synthetic plastics articles from a strip of synthetic plastics materials in which the strip is subjected to a stepwise action to facilitate the forming operation. In the machine there is provided an accumulation system between an extrusion die head and a shaping device. In accordance with the present invention the accumulation system is constituted by two heated spaced-apart drums for supporting the synthetics material strip with the drum nearer the extrusion die being rotated continuously and the other drum



having imparted to it an abrupt angular movement synchronously with means for moving the synthetic plastics strip.

CHEMICAL

3,707,344

DIFFERENTIAL-DYEING TEXTILES

Guenter Becht, Speyer, Joachim Kunde, Frankenthal, Norman La France, Bad Duerkheim, and Karl Robert Mueller, Heidelberg, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Rhineland-Pfalz, Germany

No Drawing. Filed Apr. 13, 1970, Ser. No. 28,081

Claims priority, application Germany, Apr. 18, 1969, P 19 19 746.7

Int. Cl. D02g *3/04;* D06p *3/86*

U.S. Cl. 8—21 B 8 Claims

Textiles of at least two different polyamide yarns wherein from 10 to 90% by weight of the yarn in the textile is yarn of a polyamide which contains from 1 to 15% by weight of oxyalkylated polyamide. These textiles are dyed in contrasting shades in a single-bath piece-dyeing procedure.

3,707,345

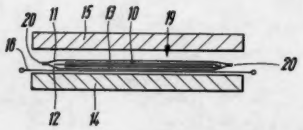
SUBLIMATORY TRANSFER DYEING IN VENTED FOIL PACKET WITH RELEASE OF TRAPPED STEAM

Herbert Kannegiesser, Vlotho (Weser), Germany, assignor to Kannegiesser Maschinenfabrik Gesellschaft mit beschrankter Haftung, Bremen, Germany

Filed Sept. 23, 1970, Ser. No. 74,653

Int. Cl. D06p

U.S. Cl. 8—25 2 Claims



This invention relates to a method for the unilateral or bilateral printing of single-layer or multilayer textile pieces or textile tapes, especially those which are made wholly or partly of synthetic fibers, whereby the textile pieces or textile tapes, which are covered with dye-layered printing foils, are introduced between heated pressure means, such as pressure plates, calender rolls, or the like, and where the dye layer is transferred to the textile pieces or textile tapes by means of sublimation due to heat and pressing pressure.

3,707,346

SUBLIMATORY TRANSFER DYEING WITH 2-CYANO-1,4-DIAMINO ANTHRAQUINONES

Juergen Markert, Basel, Peter Eckert, Madgen, Aargau, and Angelo Della Casa, Basel, Switzerland, assignors to Ciba-Geigy AG, Basel, Switzerland

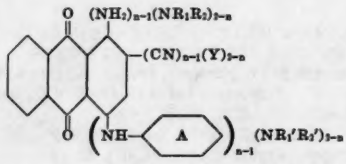
No Drawing. Filed Jan. 12, 1971, Ser. No. 105,976

Claims priority, application Switzerland, Jan. 16, 1970, 59,470

Int. Cl. D06p

U.S. Cl. 8—2.5 7 Claims

Non-textile sheet materials for carrying out transfer printing, characterized in that they carry a dyestuff of the formula



wherein the ring A is aromatic or saturated, R_1 is a hydrogen atom or an alkyl radical containing 1 to 6 carbon atoms, R_2 represents a hydrogen atom or an alkyl radical containing 1 to 6 carbon atoms, Y is a hydrogen, a bromine or a chlorine atom or a methoxy group, R_1' denotes a hydrogen atom or an alkyl radical containing 1 to 6 carbon atoms, R_2' represents an alkyl group containing 1 to 6 carbon atoms, and n is 1 or 2, with the proviso that if Y is a hydrogen atom, the alkyl groups present must contain at least 3 carbon atoms, or a mixture of such dyestuffs and optionally other sublimable dyestuffs and/or optical brighteners.

3,707,347

STAINING PLASTIC SURFACES

Bruce M. Mueller, Ottawa Lake, Mich., assignor to Owens-Illinois, Inc.

No Drawing. Continuation of abandoned application Ser. No. 744,346, Sept. 12, 1968. This application Aug. 17, 1971, Ser. No. 172,601

Int. Cl. D06p *3/00*

U.S. Cl. 8—4 10 Claims

Plastic articles are provided with sub-surface markings which are scuff-proof and resistant to acid, alkali and

solvent attack. Dye-bearing compositions are applied to a plastic surface in a desired pattern; surface and dye-bearing composition are then suitably processed to effectuate a diffusion of the dye into the surface and the residual composition is removed from the surface, thereby resulting in a durable and resistant sub-surface pattern.

3,707,348

CELLULOSE DYED WHILE WATER SWOLLEN IN A GLYCOL BATH WITH ANTHRAPYRIMIDINE DYE

John Blackwell, Kennett Square, Pa., and Edward Sherlock Wilks, Penns Grove, N.J., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed June 28, 1971, Ser. No. 157,753

Int. Cl. D06p *3/82*

U.S. Cl. 8—21 C **5 Claims**

Water swellable cellulosic fibers, for example, cotton, or blends or mixtures thereof with synthetic fibers, for example, polyester fibers, uniformly dyed in orange to violet shades with essentially water insoluble, non-vattable, anthrapyrimidine dyes, for example, 2-phenyl-4-bromo-6-(p-toluidino)anthrapyrimidine, said dyed fibers having excellent fastness to light, washing, drycleaning and sublimation and exhibiting a reflectance color value (S') after scour of at least about 0.4.

3,707,349

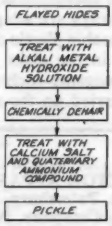
CURING AND PRETANNAGE OF HIDES

Don S. Elvrum, 6233 Saylin Lane, Annandale, Calif. 90042

Original application July 19, 1967, Ser. No. 654,432, now Patent No. 3,574,517, dated Apr. 13, 1971. Divided and this application July 2, 1970, Ser. No. 52,015

Int. Cl. C14c *1/02, 1/08*

U.S. Cl. 8—94.15 **4 Claims**



Hides may be cured and pretanned by: treating raw hides with a sodium hydroxide solution so as to react the lipid material in order to cause formation of soaps, limited attack on protein material present in the hides, and swelling of the collagen in the hides; adding sodium chloride to the sodium hydroxide solution in order to enable this salt to be taken up from the solution by the hides, causing an increase in the strength of the swollen collagen; dehairing the hides; treating the hides with sodium sulphite solution so as to add strength to the swollen collagen; treating the hides with a mixture of a quaternary ammonium salt, and a calcium salt in order to precipitate any soaps present and to place the ammonium salt within the remaining hide material and to separate fascia tissue from the remaining hide material; and pickling the hides with an acid solution so as to effect a size reduction and strengthening of the swollen collagen. If desired, the hides may be bated prior to being pickled. The so-cured hides have properties which are related to the properties of the ammonium salt. The resulting hides can be further treated in accordance with conventional tanning practices.

3,707,350

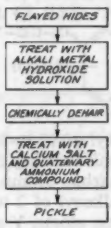
CURING AND PRETANNAGE OF HIDES

Don S. Elvrum, 6233 Saylin Lane, Annandale, Calif. 90042

Original application July 19, 1967, Ser. No. 654,432, now Patent No. 3,574,517, dated Apr. 13, 1971. Divided and this application July 2, 1970, Ser. No. 52,016

Int. Cl. C14c *1/02, 1/08*

U.S. Cl. 8—94.18 **9 Claims**



Hides may be cured and pretanned by: treating raw hides with a sodium hydroxide solution so as to react the lipid material in order to cause formation of soaps, limited attack on protein material present in the hides, and swelling of the collagen in the hides; adding sodium chloride to the sodium hydroxide solution in order to enable this salt to be taken up from the solution by the hides, causing an increase in the strength of the swollen collagen; dehairing the hides; treating the hides with sodium sulphite solution so as to add strength to the swollen collagen; treating the hides with a mixture of a quaternary ammonium salt, and a calcium salt in order to precipitate any soaps present and to place the ammonium salt within the remaining hide material and to separate facia tissue from the remaining hide material; and pickling the hides with an acid solution so as to effect a size reduction and strengthening of the swollen collagen. If desired, the hides may be batted prior to being pickled. The so-cured hides have properties which are related to the properties of the ammonium salt. The resulting hides can be further treated in accordance with conventional tanning practices.

3,707,351

TREATMENT FOR IMPROVING POLYPROPYLENE DYEABILITY

Jerry Michael Mecco, Somerville, N.J., assignor to American Cyanamid Company, Stamford, Conn.

No Drawing. Continuation-in-part of application Ser. No. 733,800, June 3, 1968, which is a continuation-in-part of application Ser. No. 509,426, Nov. 23, 1965, now abandoned. This application Apr. 17, 1970, Ser. No. 29,637

Int. Cl. D06m *11/00*

U.S. Cl. 8—100 **10 Claims**

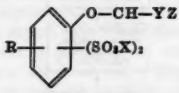
Polypropylene fibers are difficult to dye. The prior art has shown that their dyeability is improved to a certain degree by the incorporation therein of minor amounts of polymeric vinyl pyridines. It has now been found that the dyeability of the modified, i.e., vinyl pyridine-containing polypropylene, is further markedly improved by pre-treatment thereof with an aqueous composition containing from about 0.25% to about 4%, based on the weight of the fiber, of an anionic surface-active agent, such as sodium dodecyl sulfate, and sufficient acid, such as sulfuric or formic acid, to provide a pH no higher than 6 at a temperature of from about 140 to about 250° F. Thus, for example, without the pre-treatment, the modified fibers are only weakly dyeable with dyes, such as Solvent Red 106, a spirit dye, Acid Yellow 42, and acid dye, Rhodamine B, a basic dye, and Vat Jade Green, a vat dye; however, with the pre-treatment the fibers are strongly dyeable with these dyes.

3,707,352
LINEAR ALKYL HYDROCARBYLOXYBENZENE DISULFONATES

Gar Lok Woo, Tiburon, Calif., assignor to Chevron Research Company, San Francisco, Calif.

No Drawing. Filed Aug. 21, 1970, Ser. No. 66,088
Int. Cl. B08b 3/00
U.S. Cl. 8—137 5 Claims

Detergent active materials capable of heavy duty washing in the absence of phosphates comprising linear alkyl hydrocarbyloxybenzene disulfonates of the formula

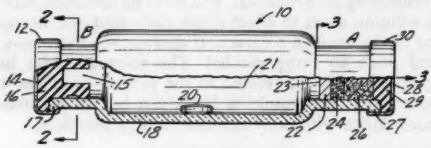


in which R is linear alkyl of 10 to 24 carbon atoms, X is H or a water-soluble salt-forming cation, Z is H, or an alkyl group of 1 to 6 carbon atoms and Y is H, alkyl of 1 to 6 carbon atoms, alkenyl of 2 to 6 carbon atoms, or aralkyl of 7 to 10 carbon atoms, Y and Z may be a polymethylene chain of 2 to 7 carbon atoms, the sum of the aliphatic carbon atoms in R and —CH—YZ is from 17 to 25, and for this purpose an aromatic carbon atom is considered equal to ⅔ aliphatic carbon atom.

3,707,353
RADIOACTIVE LABELING KIT

David O. Kubiatowicz, Arden Hills, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Mar. 26, 1970, Ser. No. 22,765
Int. Cl. G01n 23/00; G21h 5/02
U.S. Cl. 23—230 B 17 Claims

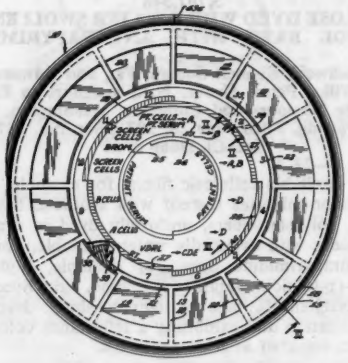


A single-unit labeling kit for radioactively labeling biodegradable microparticles for medical diagnosis and the like comprises, generally, a container having at least one open end; a porous filter plate mounted within the container separating the container into first and second compartments; a plurality of biodegradable microparticles in the first compartment; a solid source of hydrogen ion in the second compartment; a reagent tablet in the first compartment, the tablet comprising a reducing reagent and a non-reactive, non-toxic wetting agent to aid in forming a suspension of the microparticles when a liquid is introduced into the container; and means to temporarily seal the open end of the container, such means capable of receiving a syringe needle for placing a liquid in the container and for the removal of radioactively labeled microparticles. The microparticles are labeled by introducing a solution containing radioactive technetium into the end of the container carrying the solid source of hydrogen ion, acidifying the solution by passing it through the solid source of hydrogen ion and through the porous filter plate into the first compartment, agitating the acidified solution to suspend the microparticles and dissolve the reagent tablet, heating the container to complete the labeling reaction, cooling the container, and removing the supernatant containing unreacted radioactive elements and spent reagents, leaving the labeled microparticles behind on the porous filter plate which may thereafter be removed for use.

3,707,354
MEANS FOR MIXING AND CENTRIFUGATION

Harold S. Goodman, 1300 Lincoln Ave. S., Highland Park, Ill. 60035

Filed June 16, 1970, Ser. No. 46,630
Int. Cl. B04b 5/02, 9/00; G01n 33/16
U.S. Cl. 23—253 R 19 Claims

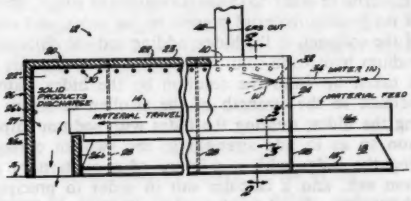


Materials in liquid medium are placed in a rotary tray which is actuated to agitate the medium and mix the materials, preceded by incubation if desired, and the tray rotated to centrifugate matter from the medium. An upwardly opening receptacle in the tray has a perimeter providing an inwardly opening pocket to receive the centrifuged matter. A plurality of vertical partitions may divide the receptacle into individual wells or compartments for concurrently performing a number of separate or related tests such as in semi-automatic blood grouping and typing procedures and compatibility or cross-typing tests. For disposability the trays are adapted to be made in the form of low cost disposable plastic disks. As a blood typing device, selected wells in the disks may be provided with predispensed typing reagents such as sera. Well-identifying indicia may be carried on the respective disks.

3,707,355
REACTOR APPARATUS

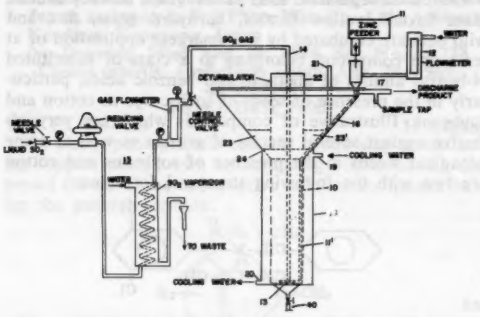
Fred T. Anderson, St. Petersburg, Fla., assignor to Gray Manufacturing Company, New York, N.Y.

Filed Dec. 11, 1970, Ser. No. 97,094
Int. Cl. C10b 7/12
U.S. Cl. 23—277 R 4 Claims



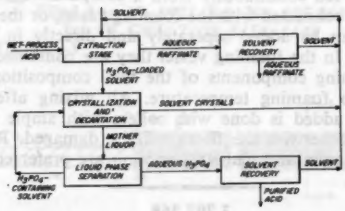
The apparatus includes a vibrating conveyor for conducting the waste material horizontally through a combustion chamber heated by electrical resistance elements. Steam barrier means is provided for excluding oxygen from the combustion chamber, affording pyrolysis decomposition of the waste material.

3,707,356
APPARATUS FOR DETURBULATING TURBULENT SOLUTIONS
George A. De Witt, Ducktown, Tenn., assignor to Cities Service Company, New York, N.Y.
Filed Dec. 16, 1970, Ser. No. 98,515
Int. Cl. B01j *1/00*; C01b *17/98*
U.S. Cl. 23—285 4 Claims



An apparatus for deturbulating turbulent solutions is provided comprising reactor, deturbulator and clarifier sections. The apparatus is useful in making zinc hydrosulfite solutions having a concentration greater than about 100 grams per liter of zinc hydrosulfite.

3,707,357
WET-PROCESS PHOSPHORIC ACID EXTRACTION INCLUDING SEPARATING SOLVENT FROM EXTRACT BY FREEZING SOLVENT
Peter T. Chiang, Atlanta, Ga., assignor to United States Steel Corporation
Filed Mar. 23, 1971, Ser. No. 127,269
Int. Cl. B01d *9/04, 11/04*; G01b *25/22*
U.S. Cl. 23—312 P 10 Claims

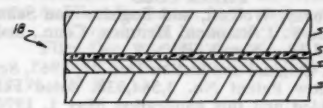


Phosphoric acid is selectively extracted from impure wet-process phosphoric acid and then stripped from the solvent extract by crystallization of the solvent with or without the addition of water.

3,707,358
CRYSTAL SUPPORT FOR A SEMICONDUCTOR CRYSTAL
Anneglen Masselink, Martinus Antonius Maria Bakker, and Bauke Visser, Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.
No Drawing. Filed June 24, 1970, Ser. No. 49,500
Claims priority, application Netherlands, June 27, 1969, 6909889; Jan. 24, 1970, 7001030
Int. Cl. B23p *3/00*
U.S. Cl. 29—195 3 Claims

A crystal support for a semiconductor crystal, preferably consisting of iron or an iron alloy which is coated with a gold layer to which the crystal is secured by means of solder. An intermediate layer of a metal which crystallizes in a hexagonal densest packing, particularly cobalt is provided between the metal of the crystal support and the gold layer.

3,707,359
COMPOSITE THERMOSTATIC METAL LAMINATE
Robert F. Hanley, Pawtucket, R.I., assignor to Texas Instruments Incorporated, Dallas, Tex.
Filed Nov. 17, 1970, Ser. No. 90,323
Int. Cl. B32b *15/00*
U.S. Cl. 29—195.5 11 Claims



A composite metal laminate material is disclosed which is particularly adapted for use as a thermostatic material. The composite metal laminate includes first and second outer layers each of preselected materials having substantially different coefficients of thermal expansion and an interliner material disposed intermediate the first and second outer layers and metallurgically bonded to one of the layers. In addition, a diffusion layer is defined metallurgically bonded to the interliner and to the other of the outer layers and defines the interface between the interliner and the other of the outer layers.

3,707,360
SMOKE SUPPRESSANT FUEL COMPOSITION
George W. Eckert, Wappingers Falls, N.Y., assignor to Texaco Inc., New York, N.Y.
No Drawing. Filed Dec. 7, 1970, Ser. No. 95,937
Int. Cl. C10l *1/18, 1/22, 1/32*
U.S. Cl. 44—51 7 Claims

Smoke inhibited middle distillate fuel composition comprising a hydrocarbon distillate fuel in the kerosene boiling range containing an additive combination comprising:

(1) a calcium carbonate overbased calcium sulfonate,
(2) a calcium hydroxide overbased calcium sulfonate and
(3) a nitropropane.

3,707,361
GASOLINE COMPOSITIONS
Weldon G. Annable, Crystal Lake, Ill., assignor to Union Oil Company of California, Los Angeles, Calif.
No Drawing. Continuation of application Ser. No. 430,464, Feb. 4, 1965. This application June 23, 1969, Ser. No. 838,036
Int. Cl. C10l *1/26*
U.S. Cl. 44—58 4 Claims

A gasoline composition containing a tetraalkyl lead compound, an alkyl aryl phosphate ester and about 0.0004 to 0.02% of the N-oleyl-1,3-propylenediamine salt of tall oil fatty acids.

3,707,362
METHOD AND COMPOSITION FOR OPTIMIZING AIR-FUEL RATIO DISTRIBUTION IN INTERNAL COMBUSTION ENGINES
Abraham A. Zimmerman and Louis E. Furlong, Elizabeth, and Hugh F. Shannon, Scotch Plains, N.J., assignors to Esso Research and Engineering Company
No Drawing. Filed Mar. 16, 1970, Ser. No. 20,083
Int. Cl. C10l *1/22*
U.S. Cl. 44—72 14 Claims

A tertiary amine having one long straight chain aliphatic group and two short chain alkyl groups, or a mixture

of such an amine with a long straight chain primary amine, when added in minor proportion to a gasoline, will improve the distribution of the air-fuel mixture in the intake manifold of a multicylinder gasoline engine, run with the resulting blend, thereby increasing operating efficiency. Addition of the mixed amines to a gasoline also improves fuel economy as evidence by better gasoline mileage. The tertiary amine aids the solubility of the primary amine in an additive concentrate used for blending.

3,707,363

ALKYL KETO-ALKYL SULFITES AND THEIR USES

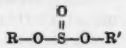
Rupert A. Covey, Wolcott, and Bogislav von Schmeling and Charles E. Crittendon, Hamden, Conn., assignors to Uniroyal, Inc., New York, N.Y.

No Drawing. Original application Dec. 22, 1967, Ser. No. 692,714, now Patent No. 3,564,038, dated Feb. 16, 1971. Divided and this application May 1, 1970, Ser. No. 43,656

Int. Cl. A01n 9/14

U.S. Cl. 71—78 **8 Claims**

Sulfite esters of the following general formula are used as chemical pruning agents:



wherein R is an alkyl or a haloalkyl radical having from 1 to 18 carbon atoms and R′ is a ketoalkyl group having 3 to 10 carbon atoms and their halo-substituted derivatives.

3,707,364

BENZOISOTHIAZOLE HERBICIDES

Friedrich Becke, Heidelberg, Adolf Fischer, Mutterstadt, and Helmut Hagen, Ludwigshafen, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

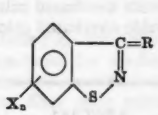
No Drawing. Filed Mar. 11, 1970, Ser. No. 18,689

Claims priority, application Germany, Mar. 26, 1969, P 19 15 387.8

Int. Cl. A01n 9/12

U.S. Cl. 71—90 **1 Claim**

Herbicides containing a compound having the formula



where X and R each denotes halogen or a nitro, thiocyano, amino, cyano or aliphatic radical, an alkylamino, acylamino, haloacylamino, alkoxy or a substituted ureido radical, R may also denote hydrogen or an aryl, aralkyl or cycloaliphatic radical, and *n* denotes one of the integers 0, 1, 2 and 3, and a process for controlling the growth of unwanted plants with these compounds.

3,707,365

SYNERGISTIC HERBICIDE COMBINATION OF CYCLOHEXENONE DIMERS WITH HERBICIDES

Harold A. Kaufman, Piscataway, and Roger P. Napier, Somerville, N.J., assignors to Mobil Oil Corporation

No Drawing. Continuation-in-part of application Ser. No. 819,109, Apr. 24, 1969. This application Mar. 31, 1970, Ser. No. 24,326

Int. Cl. A01n 9/22

U.S. Cl. 71—93 **2 Claims**

The dimer of 2-cyclohexen-1-one and its substituted derivatives are synergists that enhance the activity of herbicides, such as 2,4,5 - trichlorophenoxybenzoic acid (2,4,5–T), 2,4–D, and triazines (Atrazine).

3,707,366

PRE-EMERGENT CHEMICAL METHOD OF COMBATING UNWANTED VEGETATION

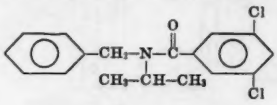
Roger P. Cahoy, Overland Park, Kans., assignor to Gulf Research & Development Company, Pittsburgh, Pa.

No Drawing. Continuation-in-part of abandoned application Ser. No. 9,419, Feb. 6, 1970. This application Nov. 9, 1970, Ser. No. 88,166

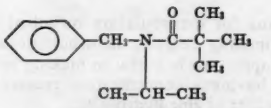
Int. Cl. A01n 9/20

U.S. Cl. 71—118 **8 Claims**

Undesired vegetation such as crabgrass, downey brome, giant foxtail, yellow foxtail, barnyard grass, flax and wild oats are combated by pre-emergent application of at least one compound belonging to a class of substituted N-benzyl amides of alkanoic and benzoic acids, particularly in the presence of seeds of such crops as cotton and soybeans. Illustrative of compounds which are very effective against several species of grasses as well as some broadleaf weeds in the presence of soybeans and cotton are two with the following structural formulas:



and



3,707,367

METHOD FOR FOAMING METALS

Johan Bjorksten, Madison, and Edward J. Rock, Blue Mounds, Wis.; said Rock assignor to Bjorksten, Inc.

Filed May 3, 1971, Ser. No. 139,606

Int. Cl. B22d 25/00, 25/06

U.S. Cl. 75—20 F **12 Claims**

Fiber reinforced foamed metal is produced by feeding to a foaming vessel a composition of reinforcing fibers, a foaming agent and a metal melting below the gas release temperature of this agent. This composition can be prepared and fed continuously from a compounding vessel, preferably connected with the foaming vessel, or the components can be added separately and directly in batch operation. In the foaming vessel they are combined with the remaining components of the final composition and brought to foaming temperature. All mixing after the fibers are added is done with rollers with ample clearances, as otherwise the fibers will be damaged. Rollers with both axial and planetary motion are preferred.

3,707,368

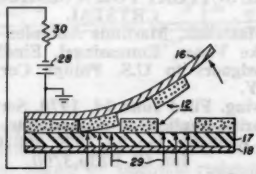
MANIFOLD IMAGING PROCESS

Warren G. Van Dorn, 300 Northridge Road, Columbus, Ohio 43214

Continuation-in-part of application Ser. No. 452,641, May 3, 1965. This application Feb. 26, 1968, Ser. No. 708,380

Int. Cl. G03g 13/22

U.S. Cl. 96—1 R **16 Claims**



A manifold imaging system wherein a cohesively weak photoresponsive imaging layer is sandwiched between two

sheets. The imaging layer is exposed to a pattern of actinic electromagnetic radiation and an electric field providing upon separation of the sheets a positive image on one sheet and a negative image on the other.

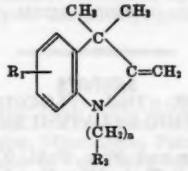
3,707,369

PHOTOCONDUCTIVE ELEMENTS CONTAINING 2-METHYL-3,3-DIMETHYL INDOLE DERIVATIVES

Hisatake Ono, Syu Watari, and Chiaki Osada, Asaka, Japan, assignors to Fuji Photo Film Co., Ltd., Ashigara-Kamigun, Kanagawa, Japan

No Drawing. Filed Aug. 20, 1970, Ser. No. 65,728
Claims priority, application Japan, Aug. 20, 1969, 44/65,829
Int. Cl. G03g 5/00
U.S. Cl. 96—1.5 11 Claims

An electrophotographic element comprising a conducting support coated with an insulating binder having dispersed therein a photoconductive indoline compound having the general formula:



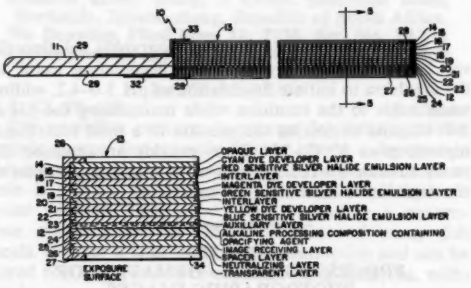
(wherein, R_1 is H, an alkyl having 1–4 carbon atoms, a halogen, —NO_2, —OR_3 or $COOR_3$ (R_3 being an alkyl having 1–4 carbon atoms), R_2 is H, OH, CN or a phenyl and n is 1–4).

3,707,370

COLOR DIFFUSION TRANSFER FILM UNITS COMPRISING A LAYER WHICH CONTAINS A SYNTHETIC POLYMER-BENZENOID SILVER HALIDE DEVELOPING AGENT COMPLEX AND PROCESS FOR THEIR USE

Dimite J. Rasmussen, Concord, and Peter H. Roth, Needham, Mass., assignors to Polaroid Corporation, Cambridge, Mass.

Filed Apr. 19, 1971, Ser. No. 135,210
Int. Cl. G03c 7/00, 5/54, 1/48
U.S. Cl. 96—3 25 Claims



The present invention relates to photography and, more particularly, to diffusion transfer process photographic film units which comprise a photosensitive element adapted to provide, by diffusion transfer photographic processing, selective dye image recordation of incident actinic radiation as a functon of the point-to-point degree of photosenstive element exposure, which film unit includes a plurality of essential layers including a photosensitive silver halide layer having associated therewith dye developer, i.e., a dye which is a silver halide developing agent, which is diffusible during processing as a function of the point-to- point degree of silver halide layer exposure to incident actinic radiation and a layer adapted to receive image-forming material diffusing thereto, at least one of the layers of the film unit comprising a particulate dispersion of a synthetic polymer-silver halide developing agent complex dissociable as a function of pH to provide a processing composition soluble silver halide developing agent; and to specified diffusion transfer processes employing such film units.

3,707,371

PHOTOSENSITIVE ELEMENT COMPRISING A POLYMER MATRIX INCLUDING STYRENE, AURAMINE O, AND A PROXIDE AND THE USE THEREOF IN VOLUME RECORDING

Victor A. Files, Rochester, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Dec. 14, 1970, Ser. No. 97,865
Int. Cl. G03c 5/04, 1/72, 1/68
U.S. Cl. 96—27 H 18 Claims

Refractive index changes are made within the volume of a photosensitive member that absorbs incident radiation to yield the change in refractive index and bleaches to a non-absorbing condition to allow writing radiation to penetrate further into the volume of the member.

3,707,372

ELECTROMAGNETIC RADIATION SENSITIVE ELEMENTS

Robert W. Hallman, Utica, and Gary W. Kurtz, Southfield, Mich., assignors to Teeg Research, Inc., Detroit, Mich.

Continuation-in-part of abandoned application Ser. No. 706,423, Feb. 19, 1968. This application Aug. 18, 1969, Ser. No. 850,972
Int. Cl. G03c 5/00
U.S. Cl. 96—35 7 Claims

Electromagnetic radiation sensitive elements comprising essentially a layer of a first material and a second layer of an inorganic material capable when exposed to electromagnetic actinic radiation to form an interreaction product with the material of the first layer, such interreaction product having physical and chemical characteristics different from those of both the first material and the inorganic material. The electromagnetic actinic radiation used for exposure of the elements may be ordinary light, monochromatic light, coherent light, electron beams, ion beams, X-rays, gamma rays, etc., and diverse systems are disclosed for selectively and discretely exposing the elements.

3,707,373

LITHOGRAPHIC PLATE DEVELOPERS

Lawrence E. Martinson, Frederick J. Rauner, and Richard E. Gilson, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Mar. 17, 1969, Ser. No. 807,969
Int. Cl. G03c 5/00
U.S. Cl. 96—35.1 11 Claims

A composition for developing presensitized lithographic printing plates having pigmented photohardenable polymer coatings is described which comprises a solvent for the polymer composition which does not appreciably swell

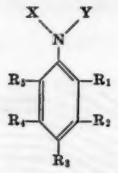
the photohardened polymer and an acid which prevents formation of stain and scum on the hydrophilic areas of the plate.

3,707,374
PHOTOGRAPHIC SILVER-BLEACHING COMPOSITION

Carol R. Van Der Voorn and Roland G. Willis, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

No Drawing. Filed Aug. 17, 1970, Ser. No. 64,625
Int. Cl. G03c *5/32, 7/16*
U.S. Cl. 96—60 **16 Claims**

A composition for bleaching photographic silver which is rapid acting and suitable for use in either color or black-and-white processing comprises a dilute aqueous solution of (1) a persulfate salt or a nitrosodisulfonate salt and (2) an aromatic amine typically of the formula:



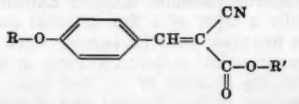
where X and Y are hydrogen or lower alkyl and R_1, R_2, R_3, R_4 and R_5 are hydrogen, amino, hydroxyl, lower alkyl, lower monoalkylamino or lower dialkylamino except that at least one of R_1 to R_5 is a substituent other than hydrogen.

3,707,375
COLOR PHOTOGRAPHIC LIGHT SENSITIVE MATERIALS HAVING IMPROVED LIGHT FASTNESS

Reiichi Ohi, Tokiharu Kondo, Kazuo Shirasu, and Yoshiaki Ono, Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Ashigara-shi, Kanagawa, Japan

Filed Oct. 7, 1970, Ser. No. 78,710
Claims priority, application Japan, Oct. 7, 1969, 44/80,154
Int. Cl. G03c *1/84*
U.S. Cl. 96—84 R **10 Claims**

A color photographic light sensitive material comprising a support and a photographic layer containing a compound represented by the following formula:



wherein R and R′, which may be the same or different, represent an alkyl group having from 1 to 20 carbon atoms, the sum of the carbon atoms of said R and R′ being at least 5.

3,707,376
PROCESS OF SENSITIZING SILVER HALIDE EMULSION WITH POLY(ALKYLENE OXIDE) AND SULFUR COMPOUNDS

Albert Louis Van Stappen, Rumson, N.J., Karl Schwarz, am Taubhaus, Germany, and Hans Weber, deceased, by Charlotte Weber, Neu-Isenberg, Germany, and Inge Lau, Brussels, Belgium, inheritors; said Van Stappen and said Schwarz assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Nov. 23, 1970, Ser. No. 92,254
Claims priority, application Germany, Nov. 21, 1969, P 19 58 467.9
Int. Cl. G03c *1/28*
U.S. Cl. 96—108 **6 Claims**

Process for improving the sensitivity/fog ratio of photographic silver halide emulsions sensitized with poly(alkylene oxide) compounds and sulfur sensitizers by adding the sulfur sensitizer during or immediately after silver halide precipitation. Gelatin emulsions and sodium and ammonium thiosulfate are preferred. Full sensitization with the poly(alkylene oxides) is attained without increasing development fog.

3,707,377
PHOTOTHERMIC DRY SILVER COATINGS STABILIZED WITH HALOGEN-CONTAINING ORGANIC OXIDIZING AGENTS

George Van Dyke Tiers and Joseph A. Wiese, Jr., St. Paul, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

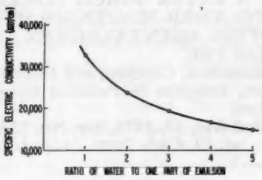
No Drawing. Filed Feb. 2, 1971, Ser. No. 112,038
Int. Cl. G03c *1/04*
U.S. Cl. 96—114.1 **8 Claims**

Light-sensitive heat-developable "dry silver" sheet materials are stabilized against background discoloration under use conditions by incorporation of selected halogen-containing organic oxidizing agents, e.g. tetrabromobutane.

3,707,378
PROCESS FOR THE FLOCCULATION OF PHOTOGRAPHIC GELATINO SILVER HALIDE EMULSIONS

Motohiro Ujihara and Itsuo Fujii, Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Ashigara-shi, Kanagawa, Japan

Continuation-in-part of abandoned application Ser. No. 643,349, June 5, 1967. This application May 14, 1971, Ser. No. 143,341
Int. Cl. G03c *1/02*
U.S. Cl. 96—114.8 **11 Claims**



A process for flocculating a photographic gelatino silver halide emulsion by adding a flocculating agent to the emulsion to initiate flocculation at pH 3.0–4.2, adding wash water to the emulsion while maintaining the pH at 3.0–4.2, and subjecting the mixture to a mild centrifugal separation at 5° C.–25° C. to provide an emulsion directly suitable for redispersion without strong adhesion of the emulsion to the wall of the separator.

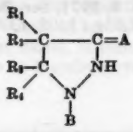
3,707,379
PROCESS FOR THE FORMATION OF PHOTOGRAPHIC IMAGES

Yoshihide Hayakawa and Yasuhiro Noguchi, Fujimiyashi, Shizuoka, Japan, assignors to Fuji Photo Film Co., Ltd., Ashigara-shi, Kanagawa, Japan

Filed May 16, 1969, Ser. No. 825,347
Claims priority, application Japan, May 16, 1968, 43/33,031
Int. Cl. G03c *1/68*
U.S. Cl. 96—115 **36 Claims**

A polymer image is formed on a photographic film on those areas which have been exposed and developed, the image proportional to the amount of exposure. The polymer image may then be dyed. The image is developed from a latent image in a photographic emulsion by developing the emulsion, in the presence of a vinyl or vinylidene

monomer, with a reducing agent capable of developing the silver halide emulsion layer and at the same time initiating polymerization, said agent selected from resorcinols, m-aminophenols, naphthols, pyrazoline-5-ones and phenols, and a reducing agent of the general formula



wherein A represents an oxygen atom or an imino group, B represents a phenyl group, R_1, R_2 and R_3 each represents a hydrogen atom or an alkyl group having 1–6 carbon atoms, and R_4 represents a hydrogen atom, an alkyl group having 1–6 carbon atoms, an aryl group, or a carboxyl group. By the use of the compound of the general fomula in combination with the reducing agent capable of initiating polymerization, the developing speed is increased and the sensitivity of the photographic emulsion is also increased.

3,707,380
METHOD AND APPARATUS OF TEXTURING PROTEIN

Herbert N. Dunning, Minneapolis, Palmer K. Strommer, Osseo, and Glenn J. Van Hulle, Minneapolis, Minn., assignors to General Mills, Inc.

Filed Oct. 27, 1970, Ser. No. 84,385
Int. Cl. A23j *1/14*
U.S. Cl. 99—17 **7 Claims**

A method for texturing particulate protein material by which the protein material is fed into an elongated treating chamber which is under pressure having an inlet at one end and an outlet at the other end and then subjecting the protein material to a steam flow from the direction of the inlet to propel the material through the elongated chamber and out the outlet, wherein the outlet opening is adjustably controlled in accordance with the amount of pressure in the chamber. Apparatus can be employed in carrying out this process.

3,707,381
TREATMENT OF RAW PROTEIN

Kenneth Henry Sharp, 3 Cedar, Southdale Road, Southdale, Johannesburg, Republic of South Africa

No Drawing. Filed Mar. 12, 1970, Ser. No. 19,111
Claims priority, application Republic of South Africa, Apr. 29, 1969, 69/2,915
Int. Cl. A23j *1/04*
U.S. Cl. 99—18 **8 Claims**

The invention concerns a process for treating a raw protein source, for example fish, to obtain a dry protein concentrate of high biological value. The protein concentrate is ground up, soaked in a weak formaldehyde in water solution, then dried. The product is a concentrate which lacks the offensive odour of many fish meals. Further it is fit for human consumption and can be stored for long periods in a packet on a shelf, i.e. without freezing.

3,707,382
PRODUCTION OF COCOA LIQUOR

Walter Rostagno, Corseaux, Switzerland, assignor to Societe d'Assistance Technique Pour Produits Nestle S.A., Lausanne, Switzerland

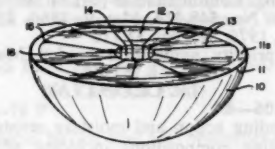
Filed July 30, 1970, Ser. No. 59,474
Claims priority, application Great Britain, Mar. 5, 1970, 10,710/70
Int. Cl. A23g *1/00*
U.S. Cl. 99—26 **24 Claims**

Cocoa liquor is prepared by heating ground fermented cocoa beans from a temperature of 40 to 80° C. to a temperature of 100 to 160° C. for 2 to 120 seconds, thereby to roast said liquor, followed by cooling to below 80° C. An alkali and/or a flavour precursor such as an amino acid, vitamin B_1 or fructose may be added before heating.

3,707,383
PREPARED CITRUS FRUIT HALVES AND METHOD OF MAKING THE SAME

Don S. Bryan, P.O. Box 154, Bartow, Fla. 33830

Filed Jan. 2, 1970, Ser. No. 129
Int. Cl. A23l *1/00*; A23p *1/04*; A23b *7/16*
U.S. Cl. 99—100 **11 Claims**

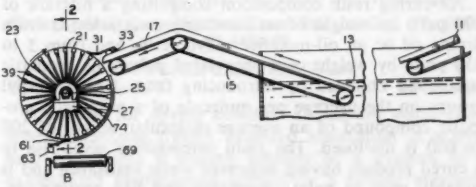


A prepared, edible citrus half of increased shelf life is provided comprising a citrus half including the rind, said citrus half having a cut face and a sealing coating on said cut face preferably comprising an edible hydrophilic colloid.

3,707,384
BLANCHING CORN BY INTERNAL FLUID INJECTION

William F. Filz, Portland, Oreg., assignor to North Pacific Canners & Packers, Inc., Portland, Oreg.

Filed Oct. 26, 1970, Ser. No. 83,767
Int. Cl. A23l *1/00*
U.S. Cl. 99—103 **3 Claims**



The method of uniformly blanching an ear of corn by blanching the kernels by an exterior operation and independently blanching the pith. A corn ear blanching apparatus having means for blanching the kernels by an exterior operation, and an arrangement for inserting a hollow perforated needle into the pith to inject hot fluid into the pith to independently stop the enzymic activity thereof.

3,707,385
METHOD OF PRODUCING FLAME AND FIRE RESISTANT COMPOSITIONS CONTAINING SILICEOUS MATERIALS

Stefan Kraemer, Essen, and Alois Seidl, Thurnstein, Germany, assignors to Wasag Chemie GmbH, Munich, Germany

No Drawing. Continuation-in-part of abandoned application Ser. No. 801,759, Feb. 24, 1969. This application Apr. 2, 1971, Ser. No. 130,775
Claims priority, application Germany, Mar. 6, 1968, P 16 96 636.2
Int. Cl. C09d *5/14, 5/16*; C09k *3/28*
U.S. Cl. 106—15 FP **12 Claims**

A method for producing coating compositions having fireproofing agents and paint binders is accomplished by

forming a solution containing alkali metal silicate, inorganic fibrous silicate, or finely powdered silicate, and water, and heating the solution to drive off the free water phase and forming a dried mixture comprising a fireproofing agent. A foaming agent may also be added to the solution. The fireproofing agents are preferably comminuted to a size below 1 mm., preferably between 1 and 50μ and are then mixed as a filler with paint and mortar binders.

3,707,386

BONDING OR IMPREGNATING COMPOSITION

Fredrik Wilhelm Anton Kurz, Nysatravagen 12, Lidingo, Sweden

No Drawing. Continuation-in-part of abandoned application Ser. No. 548,424, May 9, 1966. This application Apr. 28, 1970, Ser. No. 32,710
Claims priority, application Sweden, May 11, 1965, 6,157/65
Int. Cl. C09d *1/00*
U.S. Cl. 106—84 **8 Claims**

The bonding action and moisture resistance of water-glass bonding compositions including silicon or metal silicides are improved by addition thereto about 1–35 parts by weight of oxidic metallic compounds to 100 parts by weight of water-glass. The additive metal compounds have a particle size below 100 microns, preferably less than 40 microns, and preferably have a smooth, dense surface.

3,707,387

AIR-CURING RESIN COMPOSITION

Satoru Enomoto, Hisayuki Wada, Mikio Fujioka, and Masao Koguro, Iwaki, Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha, Tokyo-to, Japan

No Drawing. Filed Nov. 20, 1970, Ser. No. 91,601
Claims priority, application Japan, Nov. 20, 1969, 44/92,649
Int. Cl. C08h *17/28*
U.S. Cl. 106—265 **6 Claims**

Air-curing resin composition comprising a mixture of 100 parts by weight of an air-curing resin selected from drying oil or an oil-modified alkyd resin, and from 5 to 250 parts by weight of a propylated polycyclic aromatic compound obtained by introducing from 1 to 5 propyl groups on the average per molecule of a polycyclic aromatic compound of an average molecular weight of 200 to 600 is disclosed. The resin composition gives rise to a cured product having improved water resistance and is suitably used as paints, varnishes and like coating materials and sealants.

3,707,388

ASPHALTIC COMPOSITIONS

Robert N. Kinnaird, Jr., Yonkers, N.Y., assignor to Mobil Oil Corporation

No Drawing. Continuation of application Ser. No. 793,616, Jan. 23, 1969, which is a continuation-in-part of application Ser. No. 468,127, June 29, 1965, both now abandoned. This application Jan. 18, 1971, Ser. No. 107,438
Int. Cl. C08h *13/00*; C09d *3/24*
U.S. Cl. 106—273 **4 Claims**

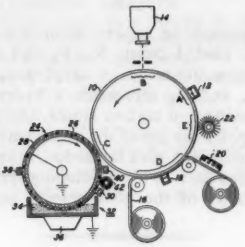
Asphaltic compositions are provided which are obtained by polymerizing a charge-stock comprising a petroleum asphalt, derived from the thermal processing of petroleum hydrocarbons, having a specific gravity of at least about 1.1 and a benzene-insolubles content from about 0 to about 12 percent by weight, in the presence of oxygen at a rate from about 0.4 c.f.m./bbl. to about 2.7 c.f.m./bbl. and at a temperature in the range from about 700° F. to about 850° F. A finished petroleum asphalt is produced having increased specific gravity and a benzene-insolubles content from about 15 to about 35 percent by weight, and can be employed as a binder for carbon particles in electrodes.

3,707,389

LATENT ELECTROSTATIC IMAGE DEVELOPMENT

John Maksymiak, Penfield, and James W. Smith, Fairport, N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Jan. 6, 1971, Ser. No. 104,365
Int. Cl. C03g *13/08, 13/22, 15/08*
U.S. Cl. 117—17.5 **2 Claims**



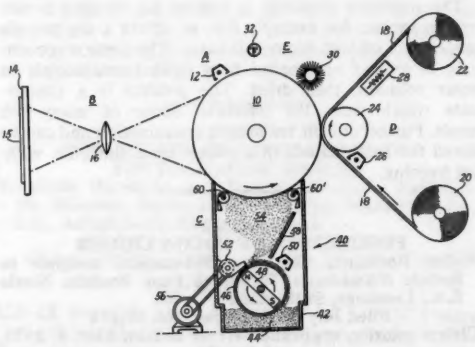
Method for development of a latent electrostatic image employing a donor member adapted to retain toner on its surface and having a number of processing stations arranged around its periphery The donor member has a corona-chargeable dielectric surface and is positioned so that a portion of its periphery passes through toner in a vibrating reservoir. The reservoir is maintained at a potential lower than the charged donor member. The toner is triboelectrically charged in the vibrating reservoir via a coating on the inside of the reservoir capable of so charging the toner and said toner is attracted to the dielectric surface of the donor which is corona charged oppositely to that of the toner.

3,707,390

METHOD FOR DEVELOPING ELECTROSTATIC LATENT IMAGES

William A. Sullivan, Jr., Webster, N.Y., assignor to Xerox Corporation, Rochester, N.Y.

Filed Jan. 12, 1971, Ser. No. 105,887
Int. Cl. C03g *13/08, 15/08*
U.S. Cl. 117—17.5 **3 Claims**



A method is provided for the development of electrostatic latent images formed on a support member. Mag-

netic toner particles are magnetically drawn over a non-magnetic surface, while on said surface a charge is applied to the toner particles which is opposite in polarity to that of the electrostatic latent image. A stream of gaseous material is directed against the charged toner particles carried on the non-magnetic surface to form a suspension of said particles in said gaseous material. This suspension, or powder cloud, is contacted with said electrostatic latent image to thereby develop said image with said toner particles.

3,707,391

IMAGING PROCESS

William L. Goffe, Webster, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Continuation of application Ser. No. 483,675, Aug. 30, 1965, now Patent No. 3,656,990, which is a continuation-in-part of application Ser. No. 403,002, Oct. 12, 1964, now abandoned, and a continuation-in-part of application Ser. No. 460,377, June 1, 1965, now Patent No. 3,520,681, which in turn is a continuation-in-part of said application Ser. No. 403,002. This application June 4, 1971, Ser. No. 150,106

The portion of the term of the patent subsequent to July 14, 1987, has been disclaimed

Int. Cl. G03g *13/00, 5/02*
U.S. Cl. 117—17.5 **25 Claims**

An imaging member comprising a fracturable layer contacting a solvent soluble layer overlying a substrate, said fracturable layer spaced apart from said substrate is imaged by forming an electrostatic image on said member and then contacting said member with a solvent for said solvent soluble layer to form an imagewise pattern of material from said fracturable layer on said substrate.

3,707,392

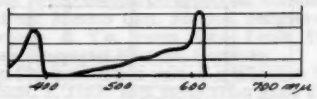
METHOD OF SENSITIZATION OF AN ELECTROPHOTOGRAPHIC MATERIAL

Satoru Honjo, Seiichi Taguchi, Masaaki Takimoto, and Hajime Miyatsuka, Asaka-shi, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Jan. 21, 1970, Ser. No. 4,711

Claims priority, application Japan, Jan. 21, 1969, 44/4,248

Int. Cl. G03g *5/00, 7/00;* **G03c** *1/00*
U.S. Cl. 117—201 **5 Claims**



A method of forming an electrophotographic light-sensitive coating on a support by coating a homogeneous coating mixture comprising photoconductive zinc oxde adsorbing one or more kind of sensitizing dye selected from the group comprising cyanine and merocyanine, said dye having a substantially planar molecular structure and being capable of forming a J-aggregate when adsorbed on zinc oxide surface, exhibiting a sharp spectral absorption due to said aggregate, and an organic solvent solution of a water-insoluble electrically insulating film-forming resinous binder, said zinc oxide being dispersed in said solution, which is characterized by that said coating mixture contains 1% to 30% water based on the weight of zinc oxide incorporated therein, so as to give rise to a stable J-aggregate on the electrophotographic light-sensitive coating finally obtained from said mixture.

3,707,393

COATED PAPER SHEET AND METHOD FOR MAKING

John William McDonald, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Feb. 23, 1971, Ser. No. 118,161

Int. Cl. B32b *29/00*
U.S. Cl. 117—76 P **24 Claims**

A sheet material having heat seal properties is provided by precoating a paper substrate with a mixture comprising (A) a copolymer of ethylene and an alpha, beta ethylenically unsaturated carboxylic acid in which the carboxylic acid groups are partially neutralized, and (B) a copolymer of ethylene and a vinyl alkanoate and from 0 to about 10% of an alpha, beta ethylenically unsaturated carboxylic acid, and applying a top coating of polyvinylidene chloride.

3,707,394

DYEING OF ANODISED ALUMINIUM

John Joseph Clementson and Dennis Ward Glen, Runcorn, England, assignors to Imperial Chemical Industries Limited, London, England

No Drawing. Filed Oct. 19, 1970, Ser. No. 82,213

Claims priority, application Great Britain, Oct. 27, 1969, 52,449/69

Int. Cl. C23f *5/04, 7/06*
U.S. Cl. 117—127 **8 Claims**

A process for dyeing anodised aluminium which comprises immersing freshly anodised aluminium in a dyebath comprising a boiling solution of a dyestuff in a halogenated hydrocarbon solvent or a boiling emulsion of a dyestuff, in a halogenated hydrocarbon solvent for example an emulsion of an aqueous solution of the dyestuff in the halogenated hydrocarbon solvent.

3,707,395

PROCESS FOR THE PRODUCTION OF NONWOVEN FABRICS CONTAINING BINDERS

Hanns Jenny, Aarau, and Georges Kieslinger, Basel, Switzerland, assignors to Sandoz Ltd. (also known as Sandoz AG), Basel, Switzerland

No Drawing. Filed July 22, 1970, Ser. No. 57,314

Claims priority, application Switzerland, July 28, 1969, 11,457/69; Aug. 15, 1969, 12,412/69; Sept. 23, 1969, 14,315/69

Int. Cl. D06m *15/52, 15/60*
U.S. Cl. 117—33.5 T **18 Claims**

Production of nonwoven fabrics by application on a nonwoven of an aqueous binder preparation, which contains an emulsified binder and a cationic additive (obtained by reticulation of polyamines or polyamide-amines with bifunctional alkylating or acylating agents), and condensation, the so produced nonwoven fabrics being

particularly suitable for brightening, dyeing and printing processes using anionic dyes and anionic fluorescent brightening agents.

3,707,396

METHOD OF PREVENTING GELLING OF PHOSPHOR COMPOSITION PRIOR TO APPLICATION TO CATHODE RAY TUBE FACEPLATE

Himanshu M. Patel, Pine City, N.Y., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Dec. 7, 1967, Ser. No. 688,896
Int. Cl. H01j *31/20*
U.S. Cl. 117—33.5 C **2 Claims**

The invention relates to color television tubes and more particularly to screen structures and the method of manufacture of screens incorporating certain oxide phosphors such as yttrium or gadolinium oxide activated with europium.

More particularly, the invention is directed to the provision of a protective coating on the phosphor particles in which a photosensitized polyvinyl alcohol binder is used to prevent gelling prior to application by the slurry process.

3,707,397

PROCESS FOR PROVIDING UNIFORM ORGANOPOLYSILOXANE COATINGS ON POLYCARBONATE AND ACRYLIC SURFACES

Donald W. Gagnon, Sylvania, Ohio, assignor to Owens-Illinois, Inc.

No Drawing. Filed Feb. 26, 1971, Ser. No. 119,344
Int. Cl. B44d *1/14*; B32b *27/30*
U.S. Cl. 117—72 **11 Claims**

Process, and the article produced thereby, for providing a uniformly and tenaciously adhered, hard, acetone-resistant and mar-resistant coating on articles having a solid polycarbonate or acrylic surface. The process includes priming the polymeric surface with an adhesion promoting, thermosettable acrylic by forming a thin film thereon, then coating the primed surface with a solution of a precured solvent-soluble, further-curable organopolysiloxane in an organic solvent and thereafter evaporating the solvent and finally curing the organopolysiloxane to a thermoset condition. The solvent-soluble, further-curable organopolysiloxane is produced by heating methyltrialkoxysilane, phenyltrialkoxysilane or mixtures thereof and water in the presence of an effective catalytic amount of a hydrolysis catalyst, e.g., HCl, at a sufficient temperature and for a time sufficient to form a partial condensation product, concentrating this product by heating to remove some alkanol by-product and water and thereafter precuring the product by heating below the gel point thereof.

3,707,398

METHOD OF PREPARING A PRE-COAT FILTER

David Charlesworth, Vernham Dean, England, assignor to Stella-Meta Filters Limited, Laverstoke, near Whitchurch, Hampshire, England

No Drawing. Filed Mar. 8, 1971, Ser. No. 122,172
Claims priority, application Great Britain, Mar. 6, 1970, 10,968/70, 11,458/70
Int. Cl. B01d *37/02*; B44d *1/16*
U.S. Cl. 117—72 **9 Claims**

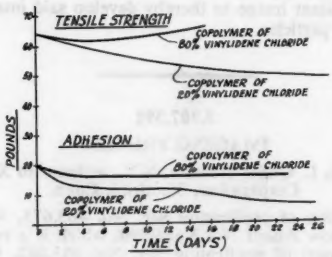
The invention provides a method of preparing a precoat filter for use in applications where silica-containing filter media cannot be employed. In the method a precoat filter is provided with a first layer of a finely-divided non-fibrous inert material and a second layer of a fibrous filter medium. In operation of the filter the non-fibrous inert material prevents fouling of the filter by the fibrous filter medium.

3,707,399

GLASS FIBER REINFORCED ELASTOMERS

William E. Uffner, Newark, Ohio, assignor to Owens-Corning Fiberglas Corporation

Filed Apr. 23, 1971, Ser. No. 136,698
Int. Cl. C03c *25/02*
U.S. Cl. 117—72 **21 Claims**



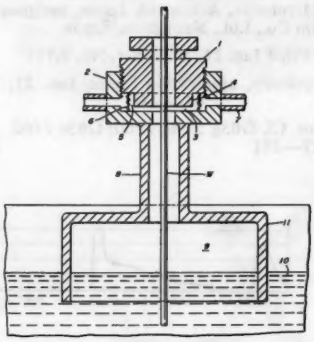
This invention is addressed to the improvement in the bonding relationship of glass fibers with elastomeric materials in which the glass fibers are coated, or glass fiber bundles are impregnated, with a composition containing resorcinol-aldehyde resin, a butadiene-styrene-vinyl pyridine terpolymer, a copolymer containing at least 60% vinylidene chloride and an incompatible wax.

3,707,400

METHOD OF GAS WIPING WIRE EMERGING FROM A HOT-DIP COATING BATH

Mahlon A. Harvey and Charles D. Stricker, Monroeville Borough, Pa., assignors to United States Steel Corporation

Continuation-in-part of abandoned application Ser. No. 804,636, Mar. 5, 1969. This application Dec. 28, 1970, Ser. No. 101,661
Int. Cl. B44d *1/42*; C23c *1/00*
U.S. Cl. 117—102 L **6 Claims**



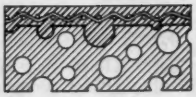
A gas jet is directed radially onto a wire in the axis of the jet to determine the thickness and smoothness of liquid coating on the wire. The quality of the coating achieved is markedly improved if the resulting downward component of the jet is confined by walls extending from the wipe region down to the bath, to cause the wiping jet to fluctuate at a much lower frequency. Where the liquid coating is an oxidizable metal such as Zn or Al, it is also desirable to employ an inert or reducing gas, to further improve coat quality.

3,707,401

PLASTIC COATED METALLIC FOAMS

Chester P. Jarema, Detroit, and Leonard M. Niebylski, Birmingham, Mich., assignors to Ethyl Corporation, New York, N.Y.

Continuation-in-part of application Ser. No. 774,756, Nov. 12, 1968, now Patent No. 3,617,364. This application June 21, 1971, Ser. No. 155,102
Int. Cl. B32b *3/26, 15/08*
U.S. Cl. 117—132 B 11 Claims



The properties of articles fabricated from foamed metals (such as foamed aluminum) are enhanced by coating surfaces thereof with plastic materials, e.g., acrylonitrile-butadiene-styrene polymers. For example, the plastic coating improves the physical properties, and enables the article to be joined to another foamed metal article, or to a metal sheet, wire, glass, rock, or other material. The organic coat gives improved strength to such joint.

3,707,402

METHOD OF MANUFACTURING ELECTRONIC RECORDING MATERIAL

Nario Yamaguchi, Sakae Shimizu, and Kazuo Tubuko, Tokyo, and Kishichiro Kondo and Hiroo Iwata, Nagoya-shi, Japan, assignors to Kabushiki Kaisha Ricoh and Toa Gosei Chemical Industry Co., Ltd., both of Tokyo, Japan

No Drawing. Filed May 28, 1969, Ser. No. 828,776
Claims priority, application Japan, June 8, 1968, 43/39,348
Int. Cl. B44d *1/18*
U.S. Cl. 117—201 4 Claims

A method of manufacturing an electronic recording material, which comprises the step of forming on a support a recording layer or a photoconductive layer consisting of a highly insulating resin or a material composed of said highly insulating resin and a photoconductive substance contained therein, said resin being a resin emulsion of vinyl copolymers having an epoxide radical or a hydroxyl group.

3,707,403

ELECTRICAL CONDUCTORS COATED WITH POLYESTERIMIDES FROM DICYANO DIAMIDE-HYDRAZINE REACTION PRODUCTS

Arnold Dobbelstein, Junkersdorf Kries Cologne, and Hans-Dieter Hille, Wuppertal-Elberfeld, Germany, and Horst Holfort, Mexico City, Mexico, assignors to Dr. Kurt Herberts & Co. vorm Otto Louis Herberts, Christbusch Wuppertal-Barmen, Germany

No Drawing. Continuation-in-part of application Ser. No. 855,039, Sept. 3, 1969. This application Mar. 29, 1971, Ser. No. 129,207
Claims priority, application Germany, July 23, 1969, P 19 37 311.6
Int. Cl. H01b *3/42*
U.S. Cl. 117—218 9 Claims

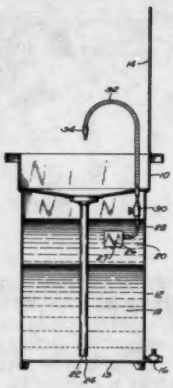
Disclosed are electrical conductors insulated with polyesterimide resins containing 5-membered imide rings. The resins are formed from polyhydric alcohols, polyvalent aromatic carboxylic acids and polyvalent amino compounds, optionally in admixture with other aliphatic and/or aromatic polyvalent carboxylic acids. A portion of the polyvalent amino compounds is the reaction product of dicyano diamide with hydrazine. The electrical conductors include an outer coating of a polyamideimide resin.

3,707,404

PARTS WASHER AND METHOD OF SOLVENT CLEANING

Clarence C. Carlson, Milwaukee, and Gordon L. Duquaine, Hubertus, Wis., assignors to Build-All Fabricating, Inc., Menomonee Falls, Wis.

Filed May 12, 1971, Ser. No. 142,449
Int. Cl. B08b *7/04*; C23g *1/36*
U.S. Cl. 134—10 10 Claims



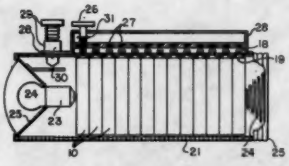
A parts washing basin is supported by a fluid tank which is partially filled with water and partially with parts washing solvent floating above the water. The drain from the basin extends to the bottom of the tank. A pump immersed in the solvent supplies solvent to a nozzle for washing the parts. Solvent collected by the drain forms a column sufficiently tall to force solvent to the bottom of the drain to bubble upwardly through the water, substantially cleaning it of foreign matter washed from the parts by the solvent.

3,707,405

SEQUENTIALLY ENERGIZED BATTERY

John C. Bogue and Robert I. Sarbacher, Santa Monica, Calif., assignors to John C. Bogue, Santa Monica, Calif.

Filed July 8, 1970, Ser. No. 53,096
Int. Cl. H01m *1/04*
U.S. Cl. 136—173 11 Claims



A sequentially energized battery, particularly adapted for intermittent use, has an extremely long standby life and will supply power intermittently over its energy capability without deterioration of the unused energy contained within it. A series of mechanically actuated electrochemical reserve cells are controlled by a selective activation device, so that each reserve cell of the series is activated only after the preceding cell has substantially spent its useful life. In applications where a relatively small amount of energy is needed intermittently, as with flashlights, it is only necessary to energize as many cells of the sequential battery as are required for the particular use.

3,707,406

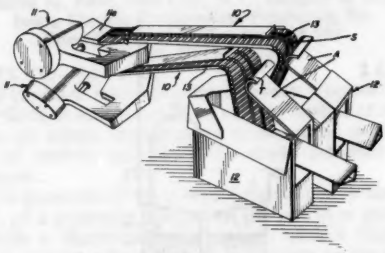
FASTENER GUIDING DEVICE

Garry R. Perkins, Cary, Ill., assignor to Spotnails, Inc., Rolling Meadows, Ill.

Filed Oct. 19, 1970, Ser. No. 81,768

Int. Cl. B25c 1/04

U.S. Cl. 227—130 13 Claims



A device is provided for use in guiding a flexible, continuous strip of collated fasteners from a bulk storage container to a high speed power-actuated driving tool spaced from the container. In addition to guiding the collated fasteners from the container to the tool, the device simultaneously orients each fastener into proper position so that it can be readily moved into firing position within the tool, notwithstanding that the axis of the fastener, when being driven by the tool into a workpiece, is angularly disposed relative to the axis of the fastener when the latter was being withdrawn from the container.

3,707,407

MULTI-STAGE FORMING OPERATIONS

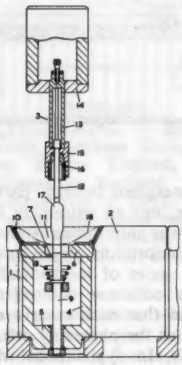
Erich R. Spielmann, Loughton, England, assignor to The British Oxygen Company Limited

Continuation of application Ser. No. 649,226, June 27, 1967. This application Apr. 21, 1970, Ser. No. 28,279

Claims priority, application Great Britain, June 28, 1966, 28,893/66

Int. Cl. C21d 7/14

U.S. Cl. 148—12 4 Claims



A high speed multi-stage forming operation with interstage heat annealing which includes the steps of immersing, at least part of a formed workpiece in coolant liquid, heating said part while immersed until it reaches the annealing temperature, and moving the workpiece while still in the coolant liquid towards the next forming stage with the heated part remaining immersed in the liquid for a time sufficient to cool the heated part below the temperature at which significant oxidation can occur.

3,707,408

METHOD FOR IMPROVING STEEL FOR CARBONATED BEVERAGE CONTAINERS

Robert M. Hudson, Churchill Borough, Allegheny County, and Clair J. Warning, Plum Borough, Allegheny County, Pa., assignors to United States Steel Corporation

No Drawing. Filed Aug. 3, 1971, Ser. No. 168,725

Int. Cl. C21d 1/74

U.S. Cl. 148—12.1 8 Claims

A method of manufacturing tinplate or other coated sheet steels for carbonated beverage containers wherein the sheet steel, following the conventional cold rolling procedure, is immersed in an aqueous solution of ferrous sulfate and sulfuric acid, dried and then annealed in a reducing atmosphere containing hydrogen.

3,707,409

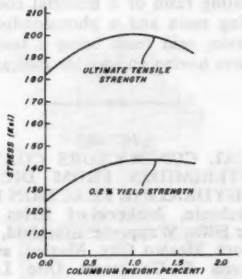
NICKEL BASE ALLOY

William J. Boesch, Utica, and Falih N. Darmara and Francis J. Warmuth, New Hartford, N.Y., assignors to Special Metals Corporation, New Hartford, N.Y.

Filed July 17, 1970, Ser. No. 55,796

Int. Cl. C22c 19/00

U.S. Cl. 148—32.5 10 Claims



A nickel base alloy containing, in weight percent, from 0.2 to 1.2% columbium, from 10 to 15% cobalt, from 1.2 to 2.0% aluminum, from 2 to 3.5% titanium, from 0.10 to 2.0% iron, from 0.0025 to 0.0125% boron, from 0.05 to 0.2% zirconium, from 15 to 19% chromium, up to 0.15% carbon, from 3 to 5% molybdenum, up to 0.1% cerium, up to 0.5% vanadium, up to 0.02% of at least one metal from Group II–A of the Periodic Table, balance essentially nickel, wherein the aluminum and titanium are present in amounts such that their sum is at least 3.6% and such that the titanium to aluminum ratio is less than 2.0.

3,707,410

METHOD OF MANUFACTURING SEMICONDUCTOR DEVICES

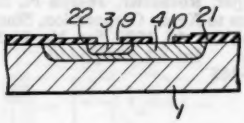
Shoji Tauchi, Kokubunji-shi, Ichiro Miwa, Kodaira-shi, and Makoto Homma, Chiba-shi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed July 27, 1966, Ser. No. 568,310

Claims priority, application Japan, July 30, 1965, 40/45,906

Int. Cl. H01l 7/44

U.S. Cl. 148—187 11 Claims



Method of manufacture of semiconductor devices having a planar surface including introducing a first impurity through a mask into a substrate to form a first doped area and introducing a second impurity through the mask into a selected portion of the substrate to a depth greater than the depth of the first doped area so as to underlie said area, said second impurity having a diffusion constant which is greater than that of said first impurity in the substrate.

3,707,411

PRIMER COMPOSITION FOR SOLID PROPELLANT CHARGES

Heinz Gawlick, Furth, Gunther Marondel, Erlangen, Werner Siegelin, Stein, and Heinz Ratz, Troisdorf, Germany, assignors to Dynamit Nobel AG, Troisdorf, Germany

No Drawing. Filed Oct. 24, 1969, Ser. No. 869,382

Int. Cl. C06c 3/10

U.S. Cl. 149—14 12 Claims

A primer composition for solid propellant charges comprising a mixture of nitrocellulose and 5–80% by weight, preferably 5–50%, of a percussion-sensitive diazo, triazole or tetrazole derivative, for example, 5-aminotetrazole, diazodinitrophenol or tetrazene. Up to about 40% by weight of nitro compounds, such as penthrite and nitromannite, can be added to vary and improve the brisance of the mixture as desired. The composition finds particular use in the recess of annular caseless propellant cartridges, for example, in stud driving tools.

3,707,412

METHOD OF MANUFACTURING LIQUID PHASE FOR EXPLOSIVE SLURRIES

Archibald H. Adams, Weir, Kans., assignor to Gulf Oil Corporation, Pittsburgh, Pa.

No Drawing. Filed Mar. 13, 1970, Ser. No. 19,473

Int. Cl. C06b 1/04

U.S. Cl. 149—46 3 Claims

A liquid phase which is useful as a base for slurry explosives is made by reacting ammonium nitrate with formaldehyde in aqueous solution and dissolving additional unreacted ammonium nitrate in the aqueous solution, followed by addition of sodium hydroxide, which serves the threefold purpose of adding sodium nitrate to the mixture, raising the pH to a value between 4 and 7 and increasing the temperature to facilitate further mixing with other ingredients of the slurry explosive compositions.

3,707,413

ROCKET OXIDIZER COMPOSITION

Donald Pilipovich, Canoga Park, Calif., assignor to North American Rockwell Corporation

No Drawing. Filed Apr. 3, 1968, Ser. No. 718,989

Int. Cl. C06b 15/00

U.S. Cl. 149—109 2 Claims

A liquid rocket oxidizer whose freezing point is below −65° F. comprising ClF_3O and from 14 to 40 weight percent ClF_5.

3,707,414

NOVEL COMPOSITE STRUCTURE FROM RESOLE RESINS AND INORGANIC NODULES

Marco Wismer, Gibsonia, and Joseph F. Bosso, Lower Burrell, Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

No Drawing. Filed Jan. 8, 1968, Ser. No. 696,103

Int. Cl. C08g 53/10

U.S. Cl. 156—78 3 Claims

This invention relates to composites of inorganic cellular nodules in foamed phenolplast resins. These compositions are useful as thermal insulation in a variety of applications, including building materials such as slab-stock insulation.

3,707,415

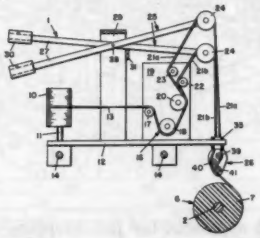
FILAMENT WINDING

Arthur D. Golladay and Kevin E. Moran, Cumberland, Md., assignors to Hercules Incorporated, Wilmington, Del.

Original application Sept. 20, 1968, Ser. No. 761,277, now Patent No. 3,565,726, dated Feb. 23, 1971. Divided and this application Oct. 9, 1970, Ser. No. 79,697

Int. Cl. B65h 81/08

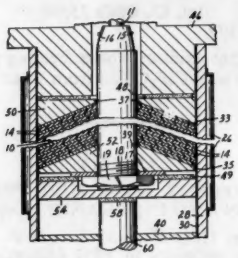
U.S. Cl. 156—169 3 Claims



This invention relates to filament winding and particularly to winding pre-impregnated tape-like filamentary material on non-cylindrical surfaces, and comprises a cutter for splitting the tape endwise into a plurality of filamentary elements and means for effecting a take-up action

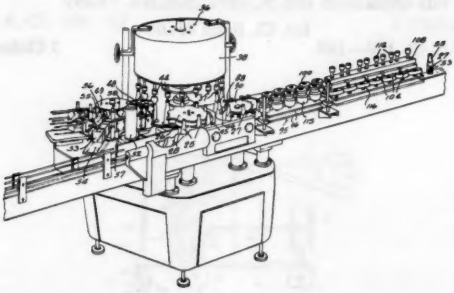
individually upon each element, thereby reducing the shingling effect inherent in winding a tape on a curved surface.

3,707,416
SKEWED BILLETS FOR MAKING LOUVERED FILMS
Edward J. Stevens, Lake Elmo, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Filed Oct. 30, 1970, Ser. No. 85,492
Int. Cl. B32b *31/00*; B44f *1/00*
U.S. Cl. 156—196 **8 Claims**



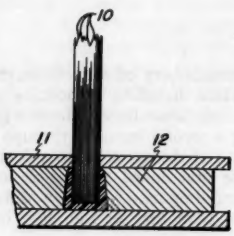
Method and apparatus are described for forming a skewed billet from coated film mounted around a shaft and deformed so that the transverse coatings assume conical forms with angles of 5° to 50°.

3,707,417
METHOD AND APPARATUS FOR FOIL WRAPPING BOTTLE NECKS
Karl Dullinger, Neutraubling, Germany, assignor to Hermann Kronseder, Neutraubling, Germany
Original application June 25, 1969, Ser. No. 836,285, now Patent No. 3,567,551, dated Mar. 2, 1971. Divided and this application Oct. 19, 1970, Ser. No. 81,732
Int. Cl. B65c *3/18, 3/22*
U.S. Cl. 156—212 **3 Claims**



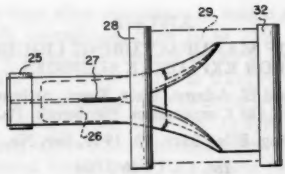
Method and apparatus for foil wrapping bottle necks and the like with precut foil wrappers stored in a magazine and comprising advancing unwrapped bottles along a path, successively feeding individual foil wrappers from the magazine toward a bottle station along said path, applying a leading portion of the wrapper to the bottle neck, rolling the wrapper around the bottle neck to wrap the wrapper around the neck and applying the trailing portion of the wrapper to the bottle neck, exposing a top margin of the wrapper upwardly beyond the top of the bottle while rolling it onto the bottle neck, pressing the exposed top margin of the wrapper inwardly in folds, and flattening the inwardly pressed and folded wrapper margin against the bottle top. The conveyor consists of individual bottle turntables and clamping stems for holding the bottle in vertical orientation while it is rotated against flaps, pads, and brushes, etc., to smooth the wrapper onto the bottle. An infeed star wheel has spaced plates with peripheral pockets which are aligned vertically and which hold the bottle in vertical orientation.

3,707,418
METHOD OF BINDING
Gopal C. Bhagat, Rochester, Joseph N. May, Webster, N.Y., assignors to Xerox Corporation, Stamford, Conn.
Filed Oct. 16, 1970, Ser. No. 81,356
Int. Cl. C09j *5/10*
U.S. Cl. 156—245 **3 Claims**



A method of binding a quantity of sheets together in a stack in which individual sheets to be bound are assembled in overlying stacked relationship with each sheet having one edge thereof uniformly positioned along a common plane. A bead of molten resinous material is then applied to the edges of the sheets along the common plane. The bead of resinous material is then flared to extend from the edges in the common plane over portions of the uppermost and lowermost sheets in the stack. The resinous material is then solidified in the flared configuration to provide a binding for the sheets along the uniformly positioned edges.

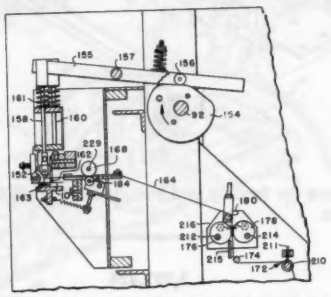
3,707,419
METHOD OF TREATING TUBULAR KNITTED FABRICS
Theodore R. Coburn, Coventry, R.I., assignor to Bevis Industries, Inc., Providence, R.I.
Filed June 14, 1968, Ser. No. 737,036
Int. Cl. B32b *31/20*
U.S. Cl. 156—250 **4 Claims**



Method and apparatus for producing a flat knitted fabric having suitable edging to inhibit unravelling. The fabric

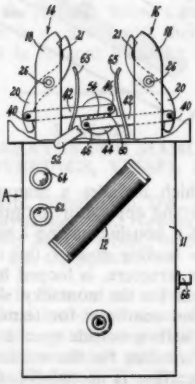
is produced from tubular knitted fabric by securing a strip of thermoplastic film longitudinally to the outside portion of the fabric and then slitting the fabric along that portion thereof covered by the film.

3,707,420
PULL TAB DEVICE
William O. Young, Jr., and Walter J. Quattlebaum, Spartanburg, S.C., assignors to Deering Milliken Research Corporation, Spartanburg, S.C.
Filed Jan. 7, 1971, Ser. No. 104,647
Int. Cl. B32b *31/00*; C09j *5/04*
U.S. Cl. 156—314 12 Claims



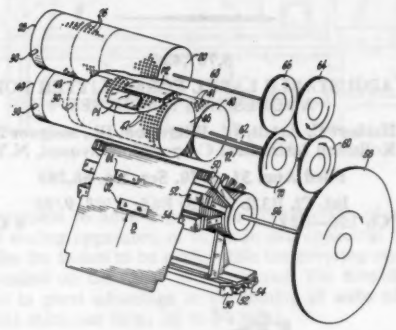
Apparatus to meter a supply of pull tabs to a heat sealing unit for the purpose of heat sealing such pull tabs over an opening in a web of material which has been previously punched therein.

3,707,421
CONNECTING APPARATUS
John George Leonard Kendall, Slough, and Derek Ladkin, Leicester, England, assignors to Bitumen Industries Limited, Buckingham, England
Filed Oct. 12, 1970, Ser. No. 80,053
Int. Cl. B29b *3/00*
U.S. Cl. 156—380 6 Claims



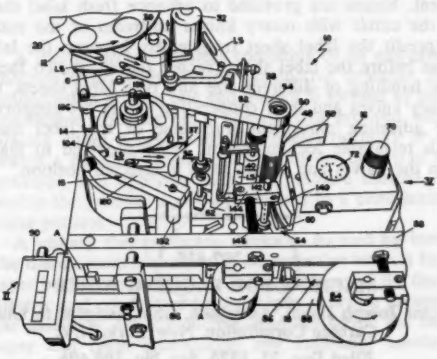
Electrical connecting apparatus in the form of a readily transportable device which includes connector jaws arranged to be operated in a scissor-like fashion to establish electrical connection between a source of electricity and a resistive conductor wire embedded in a sealing strip of heat curable composition.

3,707,422
PATCH CUTTING AND APPLICATION SYSTEM FOR TWO INDEPENDENTLY TIMED PATCHES ON AN ENVELOPE BLANK
Herbert W. Helm, Hollidaysburg, Pa., assignor to F. L. Smithe Machine Company, Inc., Duncansville, Pa.
Filed Oct. 19, 1970, Ser. No. 82,038
Int. Cl. B31b *1/24*; B65c *1/02*
U.S. Cl. 156—511 6 Claims



An apparatus whereby window envelopes are provided with two or more windows having a patch cutting and application system in which the mechanism prepares and feeds independently timed window patches to the appropriate location on each of the window envelopes. The mechanism utilizes suitable independent cutting cylinders together with a patch transfer cylinder and one of the cutting cylinders transfers the cut patches to a collating cylinder.

3,707,423
LABEL MACHINE INDEXING
John R. Davies, Grand Rapids, and Kornelis Platteschorre, Grandville, Mich., assignors to Oliver Machinery Company, Grand Rapids, Mich.
Filed Jan. 7, 1971, Ser. No. 104,604
Int. Cl. B65c *9/18*
U.S. Cl. 156—517 15 Claims



This specification discloses labeling apparatus that accurately and intermittently advances a strip of integrally

interconnected labels to be cut and applied to articles, by the use of indexing feed bosses that are mounted on a hub, that fit into openings in the label strip, and that have a tapered socket into which a reciprocated tapered pin interfits for label strip positioning by minor shifting of the hub.

Each label cut from the end of this accurately positioned strip is gripped by a passing vacuum head having its vacuum orifices controllably exposed as they pass a special sealing flap.

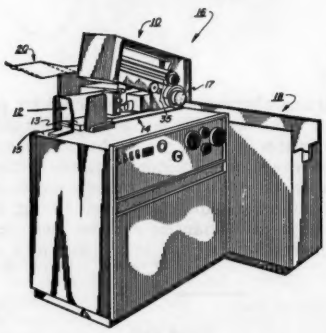
3,707,424

ADJUSTABLE LABEL FORM SLITTER FOR ADDRESSING MACHINES

Herbert C. Artelt, Jr., Wildwood, Ill., assignor to Kollsman Instrument Corporation, Syosset, N.Y.

Filed Aug. 31, 1970, Ser. No. 68,289

Int. Cl. B32b *31/18*; B65c *9/08, 9/26*
U.S. Cl. 156—521 **4 Claims**



An article addressing machine for use with an uncut label supply sheet. The addressing machine includes a labeling head with a label transfer wheel and transport means for supplying articles to the transfer wheel for addressing thereof. A guillotine cutter serves to cut the label sheet transversely, there being a label transport belt to carry the cut labels from the cutter to the transfer wheel. Means are provided to advance fresh label sheet to the cutter with rotary knives upstream of the cutter to preslit the label sheet transversely between the label rows before the label sheet reaches the cutter. To facilitate handling of different size and type label sheets, the rotary knives and their cooperating shears are supported for adjusting movement transverse of the label sheet, with releasable locking means being provided to maintain the knives and shears fixed in selected position.

3,707,425

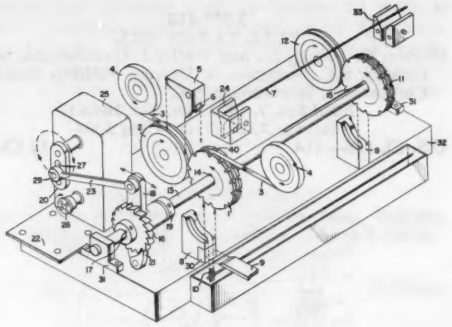
MACHINE FOR TAGGING WIRES

Victor Joseph Jamal, Ashtabula, Ohio, assignor to Union Carbide Corporation, New York, N.Y.

Filed Dec. 22, 1970, Ser. No. 100,698

Int. Cl. B32b *31/10*; B65c *3/02*
U.S. Cl. 156—522 **3 Claims**

A machine for tagging bars, rods or wires of relatively small diameter with printed adhesive tapes. The machine features include a pair of cooperating flanged rollers actuated by drive mechanism perfectly sequenced to a supply source for feeding said bars, rods or wires through the machine.



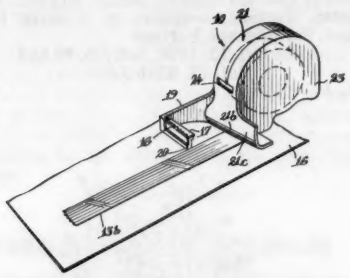
3,707,426

COMBINED TAPE DISPENSER AND APPLICATOR

Herbert D. Robison, Freehold, N.J., assignor of a fractional part interest to Edmund J. Thiele, Kenilworth, N.J.

Filed Jan. 6, 1971, Ser. No. 104,301

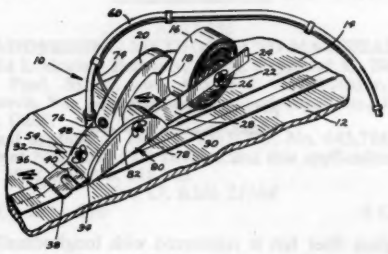
Int. Cl. B32b *31/18, 31/20*
U.S. Cl. 156—527 **3 Claims**



A device which includes a manually operated combined dispenser and applicator for pressure sensitive tape and consists of a housing having a support for a roll of said tape. The leading end of the tape, when suitably threaded in the structure, is looped by a guide for slideable engagement on the nontacky side with an outside runner plate and continues for terminal engagement on the tacky side with a outside spaced and offset adhesion plate carrying a cutter for the terminal end of the tape. A cycle of operation is accomplished by setting the apparatus down and by having the runner plate in alignment and engagement with the surface to receive the tape whereby adhesion takes place between the tacky side of the tape on the outside of the runner plate and said surfaces. Thereafter, the apparatus is moved rearwardly to disengage the leading end from the cutter and the adhesion plate and then advanced forwardly for pullout of the tape and application of said tape by the runner plate

on the applied surfaces. Near the end of the tape application area, the apparatus is lifted from said surfaces and sufficient free tape is pulled from the roll to enable the adhesion plate and cutter to the introduced under the tape for cutting the terminal end thereof and then applying the freed end of the tape by hand to the end of the surfaces of application.

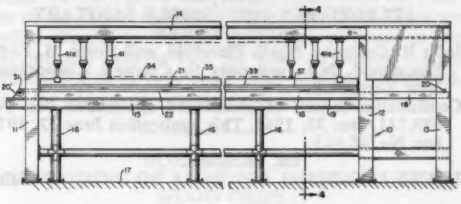
3,707,427
DISPENSING GUN FOR WALLBOARD TAPE AND JOINT COMPOUND
Elwyn J. Erickson, 266 1st St. SW., Wells, Minn. 56097
Filed Mar. 15, 1971, Ser. No. 124,016
Int. Cl. B05b *9/04*; B05c *5/02*
U.S. Cl. 156—575 **5 Claims**



A dispensing gun has a hand held unit having a dispensing chamber through which wallboard tape is passed from a roll of tape. The tape enters an inlet opening in the chamber which is effectively the width of the tape and passes therethrough to an outlet opening which is associated with a tear off blade so that the operator may apply pressure through the hand held unit to the blade so that the tape is properly applied to the wallboard. The dispensing chamber contains a quantity of compound over which the wallboard contacting side of the tape passes. The compound is replenished when the operator actuates a switch on the handle of the device which causes a pressure pump to feed compound through a hose and admit the compound to the bottom of the dispensing chamber. The compound in the chamber forms a mound over which the tape must pass in a curved path thereby insuring the tape contacts and is covered with the compound thoroughly.

3,707,428
SEALING APPARATUS FOR MANUFACTURING ROLLER COVERINGS, VESSEL LINERS AND THE LIKE
Robert Roberts, Wilmington, Del., assignor to Fluorodynamics, Inc., Newark, Del.
Filed July 24, 1970, Ser. No. 58,052
Int. Cl. B30b *15/34*
U.S. Cl. 156—583 **9 Claims**

The application is directed to a bar sealer apparatus for making elongated heat-fused seams between two sections of thermoplastic material, especially high molecular weight, high viscosity materials such as fluorinated ethylene polymers (e.g., Teflon FEP). The apparatus of the invention is designed especially for use in connection with the manufacture of heat shrinkable tubular roller coverings, vessel liners, and the like by securing together, by heat fusion, the opposite ends of webs of thermoplastic covering material. The heat-fused joints required for the purposes contemplated are of great length and are required to be of exceptional uniformity throughout. The new apparatus accommodates these severe requirements by, among other things, incorporating special provisions for the application of uniform pressures throughout the entire area of fusion. Novel arrangements are provided for the accommodation of extraordinary expansion and contraction in certain elements of the apparatus, particularly the heating element. The basic features of the new apparatus may be

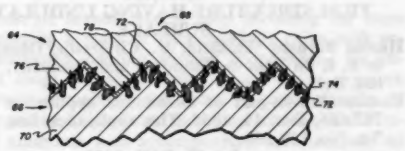


incorporated to advantage in the construction of an in-plant sealing apparatus, or in an in situ apparatus which enables the fusion to be made while the covering material is installed on the roller to be covered. The invention is useful to great advantage in the joining of webs of substantial thickness (e.g., 20 to 90 mils).

ERRATUM

For Class 161—90 see:
Patent No. 3,707,120

3,707,429
THERMOELECTRIC ELEMENT
Richard C. Saunders, Simi, Calif., assignor to North American Rockwell Corporation
Filed Jan. 20, 1970, Ser. No. 4,377
Int. Cl. H01v *1/04, 1/18*
U.S. Cl. 161—116 **5 Claims**



A thermoelectric element consisting of an end-grooved thermoelectric body having conductive granules firmly embedded in at least one end thereof is formed by placing conductive granules on a non-reactive grooved surface, placing either a preformed thermoelectric body or preferably a moldable thermoelectric powder on top of these granules, and applying heat and pressure thereto. Preferably the grooves are V-shaped and in a concentric circular pattern.

A unitary thermoelectric device is formed by bonding the thermoelectric element to a conductive body, a barrier layer being present between facing surfaces of the thermoelectric and conductive bodies. Upon applying pressure to the assembly, the conductive granules pierce the barrier layer and form interlocking low resistance conductive paths between the bodies.

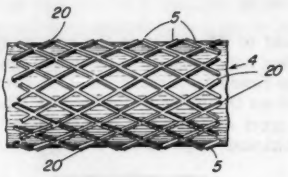
Series-connected thermoelectric modules are formed by bonding in a single operation alternate N- and P-type thermoelectric elements grooved at both ends and containing conductive granules firmly embedded in the grooves

to a conductive body at one end and to separate conductive bodies at the other end of the elements. A barrier layer which is present between the facing surfaces of the thermoelectric and conductive bodies is pierced by the conductive granules which form interlocking low resistance conductive paths between the bodies.

3,707,430
SELECTIVELY DISPERSIBLE SANITARY STRUCTURES

John R. Costanza, North Plainfield, and Bruce M. Eisen, Bloomfield, N.J., assignors to Celanese Corporation, New York, N.Y.

Continuation-in-part of abandoned application Ser. No. 699,711, Jan. 22, 1968. This application June 12, 1970, Ser. No. 45,923
Int. Cl. B32b *3/30*
U.S. Cl. 161—123 **8 Claims**

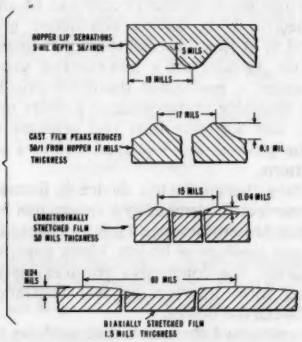


Toilet-flushable sanitary products capable of absorbing body-discharge such as diapers and sanitary napkins are disclosed which have excellent dry and wet strength and which comprise a scrim or paper of biodegradable fibers such as cellulosic fibers, and padding of water-dispersible absorbent material. The structures have a series of channels containing a selectively soluble resin which bonds the staple fibers to each other and to the absorbent material and possesses certain critical characteristics including the fact that it is stable to body-discharge but capable of being degraded in a toilet system upon the addition of a suitable substance.

3,707,431
FILM STRUCTURE HAVING UNDULATING SURFACE

Harold Barnard Whitfield, Jr., Circleville, Ohio, assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of abandoned application Ser. No. 782,686, Dec. 10, 1968. This application Jan. 19, 1971, Ser. No. 108,160
Int. Cl. B32b *3/00*
U.S. Cl. 161—123 **7 Claims**

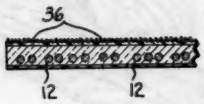


A thermoplastic film oriented by biaxial stretching having a nominal thickness of 5 mils or less and transversely repeating undulations that form ridges and valleys extending longitudinally along the length of the film wherein the ratio of the wavelength to amplitude of the undulations is about 500–2000:1 and the amplitude is not greater than about 10% of the thickness of the film. These films have significantly improved winding characteristics and are particularly useful as a base film for manufacturing magnetic recording tapes.

3,707,432
REINFORCED FIBROUS FELTS FOR ROOFING SHINGLE MANUFACTURE

Raymond Le Rae Corbin, Somerville, N.J., assignor to Johns-Manville Corporation, New York, N.Y.

Filed May 7, 1971, Ser. No. 141,309
Int. Cl. B32b *11/10*
U.S. Cl. 161—141 **14 Claims**



A glass fiber felt is reinforced with longitudinally extending glass fiber strands applied in parallel from about ⅛ to about 1 inch apart so as to provide increased tensile strength evenly distributed throughout the felt. Each shingle's length is cut from the felt transversely of the direction of felt travel so that the reinforcing strands extend from the head portion into the butt portion of the shingle. The strand arrangement permits faster saturation and coating of thinner felts and increases the tear resistance of the shingles.

3,707,433
INSULATING MATERIAL

Philip J. Clough, Cape Elizabeth, Maine, and Robert W. Steeves, Nahant, Mass., assignors to King-Seeley Thermos Co., Ann Arbor, Mich.

Continuation-in-part of abandoned application Ser. No. 722,226, Apr. 18, 1968, which is a continuation-in-part of abandoned application Ser. No. 482,473, Aug. 25, 1965. This application May 18, 1970, Ser. No. 38,211
Int. Cl. B32b *3/12, 15/08*
U.S. Cl. 161—143 **26 Claims**

Insulating material of two layers of plastic film sandwiched around a reinforcement of fibers and containing vacuum deposited metal within the sandwich. The film is selected to provide a transmission in excess of 80% for infra-red radiation in the range of 80,000–90,000 angstroms. The laminate as a whole has a very low apparent K conductivity factor.

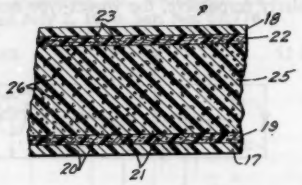
3,707,434
RIGIDIFIED RESINOUS LAMINATE

Vance A. Stayner, Wauconda, Ill., assignor to Federal-Huber Corp., Chicago, Ill.

Continuation-in-part of applications Ser. No. 700,212, Jan. 24, 1968 and Ser. No. 739,429, June 24, 1968. This application Nov. 30, 1970, Ser. No. 93,733
Int. Cl. B32b *17/04, 19/02*
U.S. Cl. 161—161 **10 Claims**

Rigidified plastic laminate having general utility as a sandwich panel, including an outer sheet of an acrylic resin, a layer of polyester resin bonded to the acrylic sheet, the layer containing glass fibers and solid inert

spheres distributed therethrough, with a co-mingled layer of a polyester resin bonded to the first layer, the second



layer being a syntactic layer of a polyester resin containing hollow plastic spheres in a stressed condition.

3,707,435

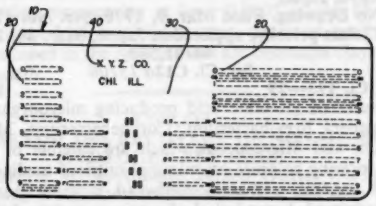
ADDRESSING METHODS AND MATERIAL

Ronald I. Morley, Berkeley, Calif., Raymond W. Biernat, St. Paul, Minn., and Arnold J. Smidt-Hayer, Falls Church, Va., assignors to Dymo Industries, Inc., Berkeley, Calif.

Original application June 5, 1967, Ser. No. 643,718, now Patent No. 3,607,527. Divided and this application Feb. 18, 1971, Ser. No. 116,562

Int. Cl. B32b *21/04*

U.S. Cl. 161—270 **8 Claims**



There is disclosed an addressing system including an addressing apparatus and addressing methods and materials use therein. A set of master cards is provided formed of porous tab card stock impregnated with a sensitizer vaporizable at 100° C. to 160° C. and having a selected area on one face thereof for the address in infrared absorbing ink; as disclosed, the master card is made by passing the porous tab card stock through a bath containing the sensitizer and a solvent therefor, after which the solvent is evaporated. The set of master cards is then employed to provide a master tape that is a strip of non-porous release material that is oleophobic and transparent to infrared radiation, and carrying thereon reverse reading copies of the addresses in the form of bodies of partially fused toner applied to one side of the master tape; the addresses are transferred from the master cards to the master tape utilizing an apparatus and method wherein a printing station is provided having a first source of infrared radiation thereat, first feed mechanism for feeding the master cards sequentially to the printing station and a second feed mechanism for feeding the master tape to the printing station to position a predetermined portion of the master tape immediately adjacent to the address on a master card positioned at then printing station, thereafter operating the first source of infrared radiation to vaporize from the master card sensitizer in areas corresponding to the address thereon onto the one surface of the master tape, applying a toner to the master tape to adhere toner to the sensitizer in areas corresponding to the address, and thereafter exposing the master tape carrying the powdered toner to a second source of infrared radiation for at least partially fusing the toner to provide a reverse reading copy of the address on the master tape. The toner comprises a vehicle body of wood rosin and polymerized resin, modifiers of polyamide resin and a hydrocarbon resin and pigment of carbon black. The master tape with the addresses thereon in partially fused toner is then fed to an addressing station where an envelope or other article to be addressed is placed with the surface thereof against the partially fused toner on a section of the master tape after which heat and pressure are applied thereto to transfer the bodies of toner to the envelope and fully to fuse the toner to provide on the envelope bodies of fully fused toner in areas corresponding to the address on a master card.

3,707,436

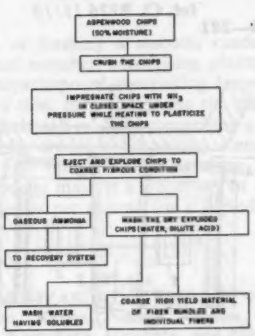
EXPLODING OF AMMONIA IMPREGNATED WOOD CHIPS

James J. O'Connor, Appleton, Wis., assignor to Kimberly-Clark Corporation, Neenah, Wis.

Continuation-in-part of abandoned application Ser. No. 641,858, May 29, 1967. This application Mar. 22, 1971, Ser. No. 126,629

Int. Cl. D21c *9/00*

U.S. Cl. 162—9 **16 Claims**


ASPENWOOD CHIPS (50% MOISTURE)
CRUSH THE CHIPS
IMPREGNATE CHIPS WITH NH3 IN CLOSED SPACE UNDER PRESSURE WHILE HEATING TO PLASTICIZE THE CHIPS
EJECT AND EXPLODE CHIPS TO COARSE FIBROUS CONDITION
GASEOUS AMMONIA
WASH THE DRY EXPLODED CHIPS (WATER, DILUTE ACID)
TO RECOVERY SYSTEM
WASH WATER HAVING SOLUBLES
COARSE HIGH YIELD MATERIAL OF FIBER BUNDLES AND INDIVIDUAL FIBERS

A process of manufacturing pulp including the steps of impregnating a mass of lignocellulosic chips with anhydrous ammonia, heating, without added steam, the impregnated chips within a closed space under pressure and suddenly releasing the pressure to cause ejection of the impregnated chips from the space and explosive removal of ammonia with accompanying deformation and disintegration of the chips to a fibrous condition in which the fibers are flexible, kinked, twisted and curled. The fibers are of a relatively light color, unfibrillated, contain substantially all of the cellulose, hemicellulose and lignin of the original material, are readily delignified and are bleachable to a high brightness.

3,707,437

PULPING AND BLEACHING OF WOOD CHIPS IN A SINGLE STAGE WITH TERTIARY BUTYL HYDROPEROXIDE

Robert M. Lincoln, Moylan, and Joseph A. Meyers III, Springfield, Pa., assignors to Atlantic Richfield Company, Philadelphia, Pa.

No Drawing. Filed July 24, 1970, Ser. No. 58,198

The portion of the term of the patent subsequent to Feb. 29, 1989, has been disclaimed

Int. Cl. D21c *9/16*

U.S. Cl. 162—78 **5 Claims**

Method for the pulping and bleaching of wood chips in a single stage using tertiary butyl hydroperoxide in an aqueous alkaline medium. This method prevents atmospheric pollution as well as waste water pollution.

3,707,438

METHOD FOR THE BRIGHTENING OF KRAFT PULP WITH TERTIARY BUTYL HYDROPEROXIDE

Robert M. Lincoln, Moylan, and Joseph A. Meyers III, Springfield, Pa., assignors to Atlantic Richfield Company, Philadelphia, Pa.

No Drawing. Filed Sept. 15, 1970, Ser. No. 72,491
Int. Cl. D21c 9/16
U.S. Cl. 162—78 9 Claims

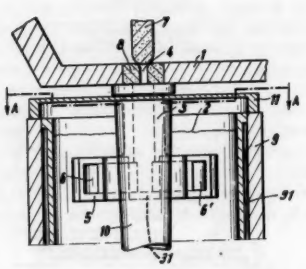
Method for replacing one or more of the chlorine or chlorine-compound bleaching steps of kraft pulp by the use of tertiary butyl hydroperoxide as a brightening agent in an alkaline medium, in particular aqueous sodium hydroxide or sodium carbonate. The amount of tertiary butyl hydroperoxide and alkaline medium required depends upon the extent of the prior bleaching of the kraft pulp.

3,707,439

DEVICE FOR CHARGING A MOLD FOR CONTINUOUS CASTING OF A HOLLOW INGOT

Hans-Peter Poeste, Heiligenhausen, and Gerd Vogt, Strump, Germany, assignors to Mannesmann Aktiengesellschaft, Dusseldorf, Germany

Filed July 28, 1971, Ser. No. 166,812
Claims priority, application Germany, July 31, 1970, P 20 39 158.6
Int. Cl. B22d 11/10
U.S. Cl. 164—281 7 Claims



Device for charging an annular mold and having a cooled mandrel for continuous casting of a hollow ingot, there being a ladle or distributor with bottom opening from which molten metal pours in down direction into and through a hollow member, eccentric to the mandrel. The bottom of the hollow member is closed and submerged in molten metal in the mold. A two-arm, looping channel extends laterally from the hollow member near the bottom thereof, around the mandrel, the two arms respectively having at their ends discharge openings, disposed in planes that do not intersect in the mandrel axis but therebehind, near the hollow member.

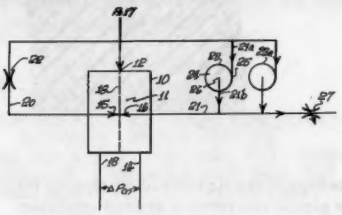
3,707,440

TEMPERATURE COMPENSATING FLUIDIC CIRCUIT

Gary L. Frederick, Tempe, Ariz., assignor to The Garrett Corporation, Los Angeles, Calif.

Filed July 15, 1970, Ser. No. 54,980
Int. Cl. F15c 1/12, 1/16
U.S. Cl. 137—81.5 8 Claims

This temperature compensating fluidic circuit has a conventional proportional amplifier which includes an interaction chamber with a beam-forming inlet at one side, spaced outlet passages on the opposite side, opposed control jet nozzles at the sides of the inlet, and passages leading from a common control pressure source to the control jet nozzles. One of these passages contains a restriction of the orifice type and the other contains one or more vortex-type resistors. Since the resistance of the vortex-type resistor is due mainly to angular momentum rather than viscosity effects, to which the orifice-type restriction is particularly responsive, the vortex-type resistor is less affected by temperature change and consequently control signals bearing a predetermined relation to temperature will be applied by the control jets to the fluid beam. A differential pressure output, dependent on temperature, will thus be delivered by the amplifier.



3,707,441

METHOD OF PRODUCING L-LYSINE BY FERMENTATION

Isamu Shiio, Konosuke Sano, and Shigeru Nakamori, Kanagawa-ken, Japan, assignors to Ajinomoto Co., Inc., Tokyo, Japan

No Drawing. Filed Mar. 9, 1970, Ser. No. 17,863
Claims priority, application Japan, Mar. 20, 1969, 44/21,509
Int. Cl. C12d 13/06
U.S. Cl. 195—29 8 Claims

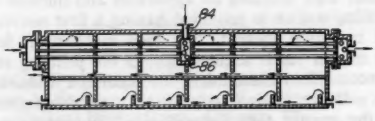
Strains of glutamic acid producing microorganisms of the genera Brevibacterium, Corynebacterium, Microbacterium, and Micrococcus which are capable of growing and forming colonies on minimal nutrient media containing 1 mg./ml. s-(2-aminomethyl)-L-cysteine monohydrochloride and 1 mg./ml. L-threonine produce L-lysine in conventional culture media in amounts large enough to warrant recovery.

3,707,442

MULTISTAGED FLASH EVAPORATOR AND A METHOD OF OPERATING THE SAME WITH SPONGE BALL DESCALING TREATMENT

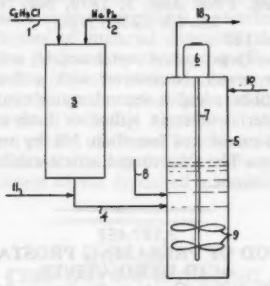
Sankichi Takahashi, Katsumoto Otake, and Toshiaki Horiuchi, Hitachi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Feb. 27, 1970, Ser. No. 15,073
Claims priority, application Japan, Mar. 5, 1969, 44/17,046, 44/17,047; June 16, 1969, 44/46,860; July 18, 1969, 44/56,455, 44/56,456, 44/56,457, 44/56,458, 44/56,459, 44/56,460
Int. Cl. B01d 3/00; F28g
U.S. Cl. 203—1 15 Claims



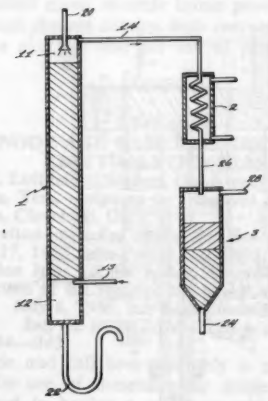
A multistaged flash evaporator for obtaining distilled water by flashing a heated brine and cooling the generated steam by the brine, wherein the brine is heated beyond a temperature of educing scale on heating surfaces but the educed scale is removed by sponge balls passed through heating tubes or by occasionally supplying brine of low temperature through the heating tubes.

3,707,443
MONTMORILLONITE CLAYS AS AIDS IN STEAM DISTILLATION OF TETRAALKYLLEAD
Thorowgood T. Broun, Jr., Beaumont, Tex., assignor to PPG Industries, Inc., Pittsburgh, Pa.
Filed July 2, 1970, Ser. No. 51,776
Int. Cl. B01d *3/38*
U.S. Cl. 203—50 11 Claims



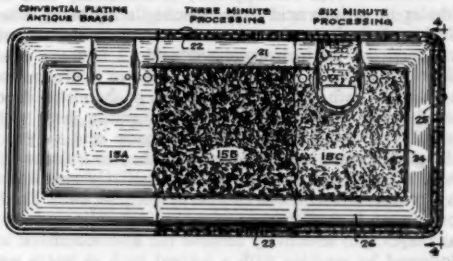
A method of dispersing lead particulates present in a reaction mass undergoing steam distillation is described. In particular the reaction mass contains tetraalkylleads, solid lead particulates, sodium halides and water. This mass is subjected to steam distillation and controlled during distillation to maintain therein a montmorillonite clay in quantities representing at least 0.0001 pound of clay per pound of lead particles present. Clays of particular note mentioned in the specification are bentonite clays and fuller's earth.

3,707,444
PROCESS FOR THE RECOVERY OF NONAQUEOUS HYDROGEN PEROXIDE
Gerd Schreyer, Gross-Auheim, Jurgen Troger, Wolfgang, Wolfgang Weigert, Offenbach am Main, and Otto Weiberg, Neu-Isenburg, Germany, assignors to Deutsche Gold- und Silber-Scheideanstalt vormals Roessler, Frankfurt am Main, Germany
Continuation-in-part of abandoned application Ser. No. 856,070, Sept. 8, 1969. This application Oct. 8, 1970, Ser. No. 79,315
Claims priority, applications Austria, Sept. 16, 1968, A 9,025/68; Germany, Oct. 10, 1969, P 19 51 211.9
Int. Cl. B01d *3/34;* C01b *15/07*
U.S. Cl. 203—51 17 Claims



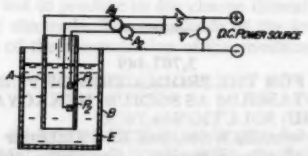
Anhydrous hydrogen peroxide solutions are prepared from a hydrogen peroxide containing working solution produced in the anthraquinone process after the oxidation step by employing a stripping distillation under reduced pressure using an organic solvent as the stripping agent.

3,707,445
METHOD OF PRODUCING A DECORATIVE FINISH ON METAL OBJECTS
Lawrence L. Green, Elmwood Park, Ill., assignor to Modern Metallics, Inc., Chicago, Ill.
Filed Apr. 29, 1971, Ser. No. 138,720
Int. Cl. B01k *1/00;* B44c *1/00*
U.S. Cl. 204—18 6 Claims



The method of forming a smooth, random marbled finish on a metal member, comprising plating the member with two superimposed contrasting layers, the outer layer being very thin, then immersing the metal member in a mass of a finishing medium comprising a multiplicity of relatively soft, erodable burnishing elements and a limited quantity of lubricant, and agitating or vibrating the finishing medium mass at a frequency of the order of 1000 to 4000 cycles per minute for a period of three to six minutes.

3,707,446
METHOD FOR MEASURING THROWING POWER
Yoshiaki Oyabu, Kyoto, Nobuo Furuno, Amagasaki, Tomosabura Kawahara, Hirakata, and Hitoshi Kawai, Neyagawa, Japan, assignors to Nippon Paint Co., Ltd., Osaka, Japan
Original application July 18, 1969, Ser. No. 842,888. Divided and this application Oct. 13, 1971, Ser. No. 188,879
Claims priority, application Japan, July 20, 1968, 43/51,271, 43/51,272, 43/51,273
Int. Cl. B01k *5/02;* C23b *13/00*
U.S. Cl. 204—1 T 4 Claims



The present invention relates to a method for measuring a throwing power in electrodeposition coating, by providing a small electrode of metal as an anode in the neighbourhood of, but separated through an electrodeposition coating solution from, a part of a material to be coated at which part a visual estimation of coating is difficult, said small electrode having a surface area sufficiently smaller than that of the material to be coated, electrodeposition-coating the small electrode simultaneously with coating the material to be coated, and measuring the current value at a peak detected by the small anode. By this method, it

becomes possible to satisfactorily coat normally inaccessible surfaces of articles without visually assessing the coating by breaking the article.

3,707,447

REMOVAL OF HYDROCOUMARIC ACID FROM ACID NICKEL PLATING BATHS CONTAINING COUMARIN

John William Alexander, Lyndhurst, Ohio, assignor to Kewanee Oil Company, Bryn Mawr, Pa.

No Drawing. Filed Feb. 16, 1971, Ser. No. 115,706
Int. Cl. B01d *15/04;* C23b *5/08, 5/46*
U.S. Cl. 204—49 12 Claims

Coumarin (1,2 benzopyrone) is commonly used as a leveler in various acid nickel electroplating baths, where, during electrolysis, the coumarin undergoes electrochemical reduction to hydrocoumaric acid (2 hydroxy phenyl B propanic acid). As the concentration of hydrocoumaric acid in the bath increases, the quality of the nickel deposit is adversely affected. The present invention deals with a method of removing the hydrocoumaric acid by passing the plating bath solution through a bed or column filled with a polymeric sorbant which selectively removes the hydrocoumaric acid and coumarin from the bath. The bed or column is then washed with an alkaline material such as Na_2CO_3 to selectively remove the hydrocoumaric acid followed by washing with a solvent such as warm water or an organic material such as a low molecular weight aliphatic alcohol, ether and ketone to dissolve and recover the coumarin. The polymeric sorbant is preferably nonionic and is typically in the form of small porous beads, each bead composed of a large number of microspheres. The method is also applicable to derivatives of coumarin and the corresponding reduction products thereof.

3,707,448

METHOD FOR EXTRACTING METAL FROM A METAL SOURCE IN AN ELECTROLYTIC CELL

Alberto E. Veloso, Quezon City, W. Rizal, Republic of the Philippines, assignor to Internationale Erfiner- und Patentanstalt Vaduz, Liechtenstein

No Drawing. Filed Oct. 20, 1970, Ser. No. 82,550
Int. Cl. C01g *1/00, 37/00;* C01f *7/02*
U.S. Cl. 204—96 4 Claims

A method of extracting metal from a metal source, such as plating, scraps or ores of tin, aluminum, zinc, lead, vanadium, chromium, manganese, molybdenum, nickel and silver, by charging the metal source into an electrolytic cell having an aqueous electrolyte containing sodium chloride and sodium carbonate, in connection with the anode of the cell, and extracting the metal from the metal source by an electrolytic reaction to form a metal salt.

3,707,449

PROCESS FOR THE PRODUCTION OF PURE AQUEOUS POTASSIUM AS SODIUM HEXACYANOFERRATE (III) SOLUTION

Helmut Reinhardt, Weiss, and Karl Trebinger and Gottfried Kallrath, Wesseling, Germany, assignors to Deutsche Gold- und Silber-Scheideanstalt vormals Roessler, Frankfurt am Main, Germany

No Drawing. Continuation-in-part of application Ser. No. 129,173, Mar. 29, 1971. This application May 17, 1971, Ser. No. 144,289
Claims priority, application Germany, Apr. 9, 1970, P 20 16 848.3; May 3, 1971, P 21 21 647.7
Int. Cl. C01c *3/12*
U.S. Cl. 204—91 7 Claims

Pure aqueous solution of potassium hexacyanoferrate (III), sodium hexacyanoferrate (III) and sodium potassium hexacyanoferrate (III) are prepared by oxidation of the corresponding hexacyanoferrate (II) solutions with acids containing the group $[Fe(CN)_6]$ and an oxidizing agent having an oxidation potential greater than +0.46 volt.

3,707,450

COATING FOR CATHODICALLY PROTECTED STRUCTURES

Herbert E. Townsend, Hellertown, Pa., assignor to Bethlehem Steel Corporation

No Drawing. Filed Aug. 5, 1970, Ser. No. 61,475
Int. Cl. C23f *13/00*
U.S. Cl. 204—147 7 Claims

A cathodically protected metal article, such as a pipeline, tank, or vessel, is covered with a first coating of chlorinated rubber, and a second, outer coating of a bituminous material wherein either or both coatings contain a dispersion of not less than 5% by weight of calcium carbonate. The thus coated article exhibits improved corrosion resistance.

3,707,451

METHOD OF PREPARING PROSTANOIC ACID DERIVATIVES

Jehan F. Bagli, Valois Gardens, Quebec, and Tibor Bogri, Montreal, Quebec, Canada, assignors to Ayerst, McKenna & Harrison, Limited, St. Laurent, Quebec, Canada

No Drawing. Original application Oct. 22, 1968, Ser. No. 769,750. Divided and this application Jan. 20, 1971, Ser. No. 108,208
Int. Cl. B01j *1/10*
U.S. Cl. 204—158 R 1 Claim

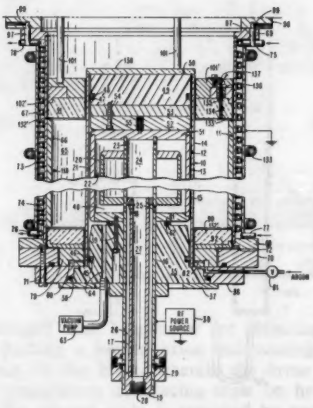
There are disclosed herein 9,15-dioxoprostanoic acid, lower alkyl esters thereof, and homologs thereof, a process to prepare those compounds, as well as a process for preparing 9,15-dihydroxyprostanoic acid, lower alkyl esters thereof, and homologs thereof. The compounds possess hypotensive and antihypertensive activities, and methods for their use are also disclosed.

3,707,452

ELONGATED ELECTRODE AND TARGET ARRANGEMENT FOR AN RF SPUTTERING APPARATUS AND METHOD OF SPUTTERING

William Carl Lester, Hopewell Junction, Carlo Nuccio, Poughkeepsie, and Ernest S. Ward, Wappingers Falls, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

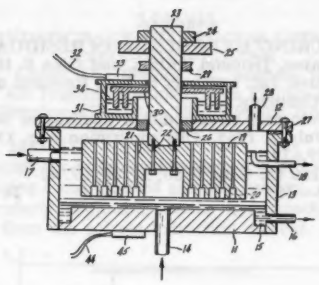
Filed Jan. 22, 1970, Ser. No. 4,825
Int. Cl. C23c *15/00*
U.S. Cl. 204—192 36 Claims



An RF sputtering apparatus has an elongated hollow cylindrical target surrounding an elongated cylindrical

cathode to shield the cathode from a partially evacuated chamber in which the target is disposed. An elongated hollow cylindrical anode is disposed in surrounding relation to the target. The target is spaced from the cathode so that cooling of the target may occur by dielectric coolant flowing therebetween with the dielectric coolant also transferring RF power to the target from the cathode when RF power is applied between the cathode and the anode. In an extension to continuous mode deposition (as opposed to batch mode deposition), substrates can have varying thicknesses of material deposited thereon from the target under the same sputtering conditions by moving each substrate into the chamber for support on the inner surface of the anode, rotating the anode about the target at a constant velocity, and then removing each substrate after a period of time. The amount of time that each of the substrates is supported on the anode determines the thickness of the deposited material on the substrate.

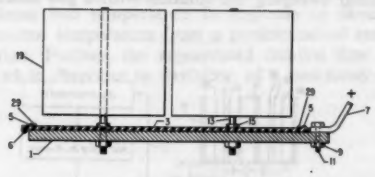
3,707,453
MERCURY CELL HAVING ROTATING ANODES
Roy M. Cooper, Groton, Conn., assignor to Olin Corporation
Continuation of application Ser. No. 820,459, Apr. 30, 1969, now Patent No. 3,580,833. This application May 6, 1971, Ser. No. 140,821
Int. Cl. B01k *3/04*; C22d *1/04*
U.S. Cl. 204—212 **9 Claims**



A new rotary anode, mercury cathode electrolytic cell for the manufacture of chlorine and caustic alkalies from aqueous alkali metal chloride brines provides the advantages of high current density, high current efficiency, low floor space and low cost per ton of product.

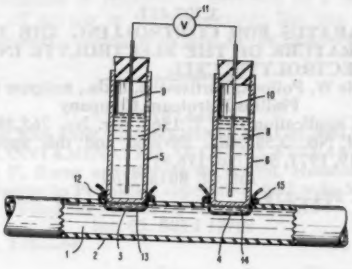
3,707,454
ANODE AND BASE ASSEMBLY FOR ELECTROLYTIC CELLS
Richard E. Loftfield, Chardon, Ohio, and Henry W. Laub, Houston, Tex., assignors to Diamond Shamrock Corporation, Cleveland, Ohio
Continuation-in-part of application Ser. No. 763,121, Sept. 27, 1968, now Patent No. 3,591,483. This application June 28, 1971, Ser. No. 157,313
The portion of the term of the patent subsequent to July 6, 1988, has been disclaimed
Int. Cl. B01k *3/04*; C22d *1/02*
U.S. Cl. 204—242 **5 Claims**

An anode and cell base assembly is provided which features the use of dimensionally stable anodes. It is characterized in having a cell base which serves as a rigid support for the anodes, as a conductor for distributing current to the anodes and as a rigid support for the cell can. Furthermore a sheet of electrically nonductive material covers the entire cell base and serves to insulate the contact between the cell can and the cell base



and also provides a hydraulic seal to prevent leakage of electrolyte.

3,707,455
MEASURING SYSTEM
Donald B. Derr, Peekskill, Gordon W. Neff, Mahopac, and Carlos J. Sambucetti, Mohegan Lake, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed July 15, 1968, Ser. No. 744,951
Int. Cl. G01n *27/26, 27/40*
U.S. Cl. 204—195 P **6 Claims**

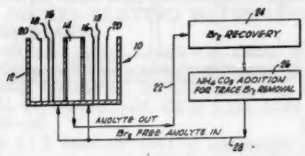


A differential ion sensitive measuring system is provided to measure the concentration of particular constituents of a fluid. A pair of identical ion sensitive electrodes or probes are used to provide the differential measurement. One of the electrodes is surrounded with a reagent selected to react with the molecules of the fluid constituent under test. Upon contact with the fluid to be analyzed each electrode responds in the same manner to ions in the fluid so as to yield a zero voltage difference from the effects thereof. However, at the electrode surrounded with the reagent the latter reacts with molecules of the constituents under test to produce an ion change thereat not seen by the other electrode. The magnitude of the ion change is indicative of the concentration of the constituent under test.

3,707,456
ELECTROCHEMICAL CELL
Edward H. McDonald and William P. Banks, Ponca City, Okla., assignors to Continental Oil Company, Ponca City, Okla.
Filed Oct. 16, 1970, Ser. No. 81,318
Int. Cl. B01k *3/00, 3/10*
U.S. Cl. 204—237 **18 Claims**

An electrochemical cell for use in preparing tetraethyl lead, and including an anode, a lead cathode spaced from the anode, a semi-permeable, ion-exchange membrane between the cathode and anode, and a permeable shield interposed between the anode and the ion-exchange membrane to retard the diffusion of bromine to the membrane and thereby reduce attack of bromine on the membrane. The shield may be constructed of a material which is

reactive with bromine to further and more completely block the passage of bromine into the catholyte. Bromine is preferably further removed from the anolyte solution by either sweeping the solution with a gas reactive with bromine or by removing the anolyte solution from the anode chamber of the cell, chemically removing the bromine and then recirculating the bromine-free anolyte to the cell.



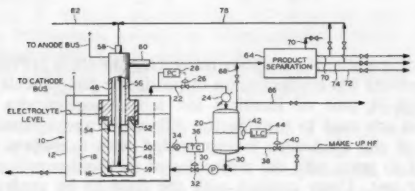
ERRATUM

For Class 204—250 see:
Patent No. 3,707,467

3,707,457
APPARATUS FOR CONTROLLING THE TEMPERATURE OF THE ELECTROLYTE IN AN ELECTROLYTIC CELL

Lyle W. Pollock, Bartlesville, Okla., assignor to Phillips Petroleum Company

Original application Oct. 7, 1968, Ser. No. 765,301, now Patent No. 3,582,482. Divided and this application Feb. 19, 1971, Ser. No. 116,815
Int. Cl. B01k *3/00*
U.S. Cl. 204—278 **5 Claims**



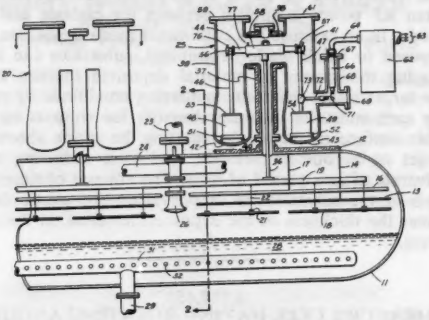
Electrochemical conversion apparatus comprising a combination of elements for controlling the temperature of the electrolyte in an electrolytic cell, including pressure control means for the cell to control the pressure on the cell and hence the boiling point of the electrolyte.

3,707,458
ELECTRIC TREATER WITH PROTECTED INSULATORS

Delber W. Turner, Houston, Tex., assignor to Petrolite Corporation, St. Louis, Mo.

Filed Nov. 26, 1971, Ser. No. 202,213
Int. Cl. B01d *13/02*
U.S. Cl. 204—308 **15 Claims**

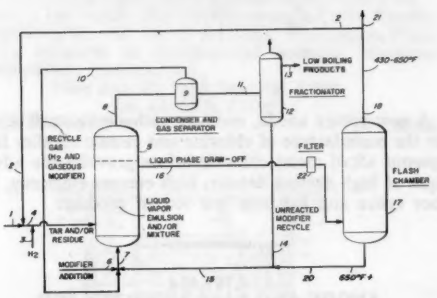
A system for electrically treating emulsions in a vessel containing inlets and outlets, and an electric field formed by an energized electrode connected to an external transformer. A first conduit extends upwardly from the vessel to a branch conduit which connects to a pair of arm conduits extending downwardly to closed ends. A support rod extends in the first conduit from the energized electrode and connects through a horizontal support rod to an arm support rod in each conduit. Each arm support rod is secured to the top of a cylindrical insulator resting within a socket upon the closed end of the arm conduit. Heat exchanger means are associated with the arm conduits at a position space from the branch conduit. The heat exchanger means create a temperature gradient between the insulators and the interior of the vessel. The liquid in the vessel can be at elevated temperatures (e.g., 500° F.) while the insulators remain at relatively low temperatures (e.g., 100° F.) during electrical resolution of emulsions.



3,707,459
CRACKING HYDROCARBON RESIDUA

Ralph B. Mason, Denham Springs, and Glen P. Hamner, Baton Rouge, La., assignors to Esso Research and Engineering Company

Continuation-in-part of abandoned application Ser. No. 839,220, July 7, 1969. This application Apr. 17, 1970, Ser. No. 29,629
Int. Cl. C10g *9/00, 13/00, 37/02*
U.S. Cl. 208—76 **26 Claims**



Hydrocarbon residua boiling mostly 1000° F. and above are depolymerized in the presence or absence of hydrogen in one or more stages under liquid phase conditions to obtain a product which is predominantly an aromatic gas oil and eminently suitable either as a solvent or as feed to hydrocracking operations. Although the upper boiling limit of this gas oil may be in the range of 600 to 1000° F., the process is illustrated by two schemes, one in which the gas oil is separated into fractions boiling 430–650° F., 650–1000° F. and 1000° F.+ and the other in which the gas oil is separated into 430–650° F. and 650° F.+ fractions. In each scheme an amount of the low-boiling fraction is recycled so that the feed mixture to the reaction zone contains 20 to 50% of the low-boiling fraction while the high boiling fraction is recycled at a rate

such that the amount present in the feed mixture to the reactor is equal to the amount in the make product thus resulting in balanced conditions. 1–25% of an acyclic hydrocarbon modifier and/or a mild alkali is added to the reaction mixture to act as a free-radical acceptor. When a hydrocarbon is used it has a residence time of one hour or less as compared to 1 to 6 hours for the residua-recycle mixture.

3,707,460
NAPHTHA HYDROFORMING PROCESS
Ralph J. Bertolacini, Chesterton, and Richard D. Petersen, Valparaiso, Ind., assignors to Standard Oil Company, Chicago, Ill.
No Drawing. Continuation-in-part of application Ser. No. 858,119, Sept. 15, 1969, which is a continuation-in-part of abandoned application Ser. No. 788,671, Nov. 7, 1968, which in turn is a continuation-in-part of abandoned application Ser. No. 512,268, Dec. 6, 1965. This application Mar. 19, 1971, Ser. No. 126,366
Int. Cl. C10g *35/08, 39/00*
U.S. Cl. 208—65 **33 Claims**

The process comprises contacting naphtha and hydrogen with a first catalyst under hydroforming conditions and finally with a second catalyst under hydroforming conditions. The first catalyst comprises a Group VIII metal, a halide, and alumina. The second catalyst comprises a Group VIII metal, mordenite, and alumina. The second catalyst may be characterized further by 0.1 to 1.2 wt. percent chloride.

3,707,461
HYDROCRACKING PROCESS USING A COAL-DERIVED ASH
John G. Gatsis, Des Plaines, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
No Drawing. Filed Dec. 18, 1970, Ser. No. 99,677
Int. Cl. C10g *13/02*
U.S. Cl. 208—111 **7 Claims**

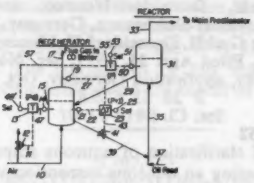
A process for hydrocracking heavy hydrocarbonaceous oils utilizing a coal-derived ash as a catalyst. The process is particularly applicable to the hydrocracking of oils derived from the solvent extraction of coal.

3,707,462
CONVERSION OF HEAVY PETROLEUM FEEDSTOCKS
Gerald Moss, Oxford, England, assignor to Esso Research and Engineering Company
Filed Jan. 25, 1971, Ser. No. 109,124
Claims priority, application Great Britain, Jan. 27, 1970, 3,824/70
Int. Cl. C10g *9/28*
U.S. Cl. 208—127 **14 Claims**

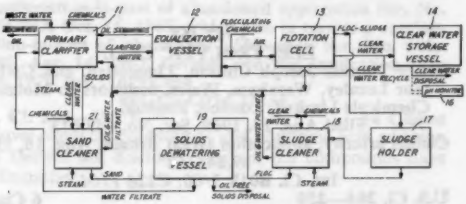
A modified fluid coking process in which particles comprising CaO replace the coke in the coker, and the coke deposited on the particles is burned off in the burner. Sulphur from the coke is fixed in the particles mainly as CaS. Some of the particles pass indirectly back to the coker via a regenerator in which they are contacted with oxygen with the release of SO_2 in useful concentrations.

3,707,463
FCC CATALYST SECTION CONTROL
Michael D. Harter, Cranbury, and Benedict MacFarlane and Vern W. Weekman, Jr., Cherry Hill, N.J., assignors to Mobil Oil Corporation
Filed Dec. 7, 1970, Ser. No. 95,641
Int. Cl. C10g *13/18*
U.S. Cl. 208—164 **9 Claims**

The specific disclosure provides for controlling a catalyst section of a fluid catalytic cracking system by adjusting the flow rate of an oxygen-containing gas to a regenerator in response to deviation of the regenerator dense bed temperature from a predetermined dense bed temperature, and by adjusting the predetermined regenerator dense bed temperature in response to deviation of the reactor temperature from a predetermined reactor temperature. Further, the regenerated catalyst flow rate is adjusted in response to deviation of a measured temperature difference between the regenerator dense bed and the regenerator flue gas from a predetermined regenerator dense bed and regenerator flue gas temperature difference. Alternatively, the regenerated catalyst flow rate is adjusted in response to deviation of a measured amount of oxygen in the regenerator flue gas from a predetermined amount of oxygen in the regenerator flue gas.



3,707,464
PROCESS FOR CLARIFYING AN OIL-SOLIDS CONTAMINATED AQUEOUS STREAM
William F. Burns and Robert B. Martin, Houston, Tex., assignors to Petrolite Corporation, St. Louis, Mo.
Filed July 15, 1971, Ser. No. 163,184
Int. Cl. B01d *17/02*
U.S. Cl. 210—44 **11 Claims**



A process for clarifying an oil-solids contaminated aqueous stream such as may arise from the operation of a railroad equipment servicing facility. A primary clarifier gravitationally separates the stream into settled solids, a merchantable oil product and a clarified water stream. The clarified water stream is treated by creating a flocculation product for removing solids and oil therefrom to produce a clear water stream delivered to a subsequent utilization. Settled solids may be returned to the primary clarifier. The flocculation product is accumulated in a sludge cleaner to be periodically converted into water and oil phases. The oil phase is returned into the primary clarifier. The water phase is reformed into an oil-free flocculation product and separated from a water filtrate returned into the pimary clarifier. Solids from the primary clarifier are accumulated in a sand cleaner to be periodically cleaned to separate oil-free solids from a solids-free water-continuous filtrate returned to the primary clarifier. The reformed

flocculation product and oil-free solids are separated in a solids dewatering vessel from a water filtrate returned into the primary clarifier. The relatively water-free solids are then delivered to a subsequent utilization such as land fill.

3,707,465

CLARIFICATION OF AQUEOUS SUSPENSIONS WITH OXYAMINATED POLYACRYLAMIDE FLOCCULATING AGENTS

Elmar Reinwald, Dusseldorf-Wersten, and Joachim Galinke, Dusseldorf-Holthausen, Germany, assignors to Henkel & Cie GmbH, Dusseldorf-Holthausen, Germany

No Drawing. Filed Apr. 21, 1971, Ser. No. 136,206

Claims priority, application Germany, Oct. 31, 1970, P 20 53 675.8

Int. Cl. B01d *21/01*

U.S. Cl. 210—52 10 Claims

A process of clarification of aqueous suspensions consisting of contacting an aqueous suspension with an oxyaminated polyacrylamide in order to form a floc and separating clarified water from said floc.

3,707,466

CLARIFICATION OF AQUEOUS SUSPENSIONS WITH OXYALKYLATED POLYACRYLAMIDE FLOCCULATING AGENTS

Elmar Reinwald, Dusseldorf-Wersten, and Joachim Galinke, Dusseldorf-Holthausen, Germany, assignors to Hendel & Cie G.m.b.H., Dusseldorf-Holthausen, Germany

No Drawing. Filed Apr. 21, 1971, Ser. No. 136,205

Claims priority, application Germany, Apr. 29, 1970, P 20 21 006.4

Int. Cl. B01d *21/01*

U.S. Cl. 210—52 10 Claims

A process of clarification of aqueous suspensions consisting of contacting an aqueous suspension with an oxyalkylated polyacrylamide in order to form a floc and separating clarified water from said floc.

3,707,467

ELECTROLYTIC CELL

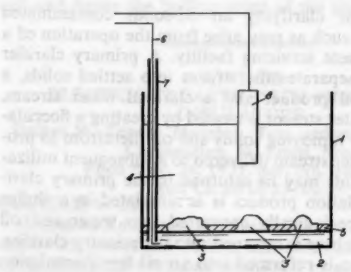
Henry Thomas Joseph Chilton, Llangollen, and Gwilym Ivor Lumley, Wrexham, Wales, assignors to Monsanto Chemicals Limited, London, England

Filed Aug. 13, 1969, Ser. No. 849,673

Claims priority, application Great Britain, Aug. 16, 1968, 39,248/68

Int. Cl. B01k *3/00*; C22d *1/04*

U.S. Cl. 204—250 6 Claims



An electrolytic cell for use in a process where an electrode material is consumed has at least one piece of the consumable electrode material in electrical contact with a liquid metal and in electrolytic contact with an electrolyte, an insulating liquid layer between the liquid metal and the electrolyte, a second electrode in electrolytic contact with the electrolyte, and electrical connections to the liquid metal and to the second electrode.

ERRATA

For Classes 252—33 through 252—554 see:
Patents Nos. 3,707,498 through 3,707,512, inclusive

3,707,468

3,3a - DIHYDROPYRROLO[1,2-a]QUINAZOLINE-1,5(2H,4H)-DIONES AND RELATED INTERMEDIATES

Stanley C. Bell, Penn Valley, and George T. Conklin, Havertown, Pa., assignors to American Home Products Corporation, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 689,007, Dec. 8, 1967. This application June 15, 1970, Ser. No. 46,523

Int. Cl. C07d *51/48*

U.S. Cl. 260—256.4 Q 6 Claims

This invention concerns 1,2,3,3a - tetrahydro-1-iminopyrrolo[1,2 - a]quinazolin-5(4H)-ones and 3,3a-dihydropyrrolo[1,2 - a]quinazoline - 1,5(2H,4H) - diones. The former compounds are useful intermediates in the preparation of the latter which are pharmacologically active as anti-edema agents.

3,707,469

2,9-BIS-TRIFLUOROMETHYLQUINACRIDONE AND INTERMEDIATE THEREFOR

Edward E. Jaffe, Union, N.J., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Sept. 22, 1970, Ser. No. 74,535

Int. Cl. C07d *37/18*

U.S. Cl. 260—279 R 4 Claims

The novel quinacridone pigment, 2,9-bis-trifluoromethylquinacridone, is prepared, as for example, by oxidation of novel intermediate 2,9-bis-trifluoromethyl-6,13-dihydroquinacridone.

3,707,470

PROCESS FOR REMOVING PHENOLIC HYDROXYL GROUP FROM PHENOLIC COMPOUNDS

Yoshiro Sawa, Ashiya, Ryozo Maeda, Osaka, and Junji Irisawa, Nishinomiya, Japan, assignors to Shionogi & Co., Ltd., Osaka, Japan

No Drawing. Filed June 22, 1970, Ser. No. 48,509

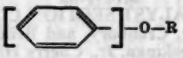
Int. Cl. C07d *43/32*

U.S. Cl. 260—285 14 Claims

Phenolic hydroxyl group of phenolic compounds is removed by reacting a phenolic compound including phenol, cresol, naphthol, guaiacol, thymol, morphinan series phenol, steroidal phenol and salts thereof with a compound represented by the formula:

R—X

wherein R is 2-pyridyl, 2-pyrimidyl, 2-quinolyl, 1-isoquinolyl, or 3-isoquinolyl and X is halogen to give an ethereal compound represented by the partial formula:



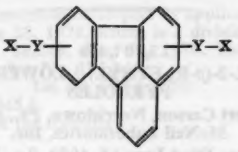
wherein R is as above and hydrogenating the ethereal compound over palladium catalyst in an inert solvent in the range of temperature from 15 to 100° C. to substitute the ether group (R—O—) with hydrogen. The process proceeds economically in a short period with high yields.

3,707,471
FLUORANTHENE BIS-BASIC ETHERS AND THIOETHERS

William L. Albrecht and Robert W. Fleming, Cincinnati, Ohio, assignors to Richardson-Merrell, Inc., New York, N.Y.

No Drawing. Filed Apr. 27, 1970, Ser. No. 32,456
Int. Cl. C07d *29/28*
U.S. Cl. 260—293.62 **10 Claims**

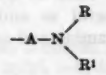
The novel bis-basic ethers and thioethers of fluoranthene of the present invention have useful antiviral activity. These new compounds are represented by the following formula:



Formula 2

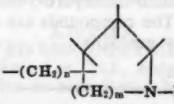
wherein each Y is oxygen or divalent sulfur; and each X is

(A) the group



wherein each A is a straight or branched alkylene chain having from 2 to 8 carbon atoms; R and R^1 are individually hydrogen, (lower)alkyl having from 1 to 6 carbon atoms, cycloalkyl of from 3 to 6 carbon atoms, alkenyl of from 3 to 6 carbon atoms and having the vinyl unsaturation in other than the 1-position of the alkenyl group; or each set of R and R^1 taken together with the nitrogen atom to which they are attached is a saturated monocyclic heterocyclic group such as pyrrolidino, piperidino, morpholino or N-(lower)alkylpiperazino; or

(B) the group



wherein *n* is a whole integer from 0 to 2, *m* is 1 or 2, and R^2 is hydrogen, (lower)alkyl of from 1 to 6 carbon atoms, or alkenyl of from 3 to 6 carbon atoms and having the vinyl unsaturation in other than the 1-position of the alkenyl group.

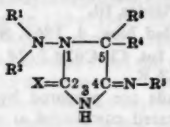
This invention also includes pharmaceutically acceptable acid addition salts of the bases represented by Formula I. These new compounds may be prepared by several different methods which are described.

3,707,472
DERIVATIVES OF IMIDAZOLIDIN-2-ONES AND -2-THIONES

Amedeo Failli, Montreal, Quebec, and Manfred Gotz, Hudson, Quebec, Canada, assignors to American Home Products Corporation, New York, N.Y.

No Drawing. Filed July 17, 1970, Ser. No. 55,952
Int. Cl. C07d *49/30, 57/00*
U.S. Cl. 260—293.7 **13 Claims**

There are disclosed herein derivatives of imidazolidin-2-ones and -2-thiones of the Formula I



and their acid addition salts with pharmacologically acceptable acids, in which R^1 is hydrogen or lower alkyl; R^2 is lower alkyl, nitrothiazolyl, or nitrofuryl; or R^1 and R^2 together with the nitrogen to which they are attached are a heterocyclic group containing 4–6 carbon atoms, or 4 carbon atoms and an additional nitrogen atom which may optionally be substituted with a lower alkyl group, or 4 carbon atoms and an oxygen atom, R^3 is hydrogen or lower alkyl; R^4 is lower alkyl or aralkyl, or R^3 and R^4 together with the carbon atom 5 of the imidazolidine ring to which they are attached are a carbocyclic ring containing 5–6 carbon atoms attached in spiro fashion to said imidazolidine ring; R^5 is lower alkyl or cycloalkyl containing from 5–6 carbon atoms; and X is an oxygen or a sulfur atom. The compounds of this invention possess positive inotropic activity and are useful as cardiac stimulants.

3,707,473
2-SUBSTITUTED-p-NITRO-ANILINES

Rodney Ian Fryer, North Caldwell, Leo Henryk Sternbach, Upper Montclair, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Original application Apr. 11, 1967, Ser. No. 629,921. Divided and this application Sept. 30, 1970, Ser. No. 76,989
Int. Cl. C07d *29/28*
U.S. Cl. 260—293.76 **10 Claims**

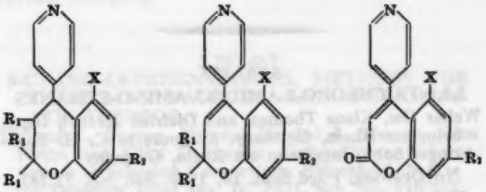
Novel 2-substituted-p-nitro-anilines and a method for their preparation are disclosed. These compounds are useful as intermediates in the preparation of pharmacologically useful 2,3-dihydro-3-(N-substituted carbamoyl)-7-nitro-1,4-benzodiazepines.

3,707,474
CERTAIN 4-(4-PYRIDYL)-5-HYDROXY-COUMARIN INTERMEDIATES

Raj K. Razdan, Belmont, Mass., and William R. Thompson, Ithaca, N.Y., assignors to Beecham Group Limited, Brentford, England

No Drawing. Application May 11, 1970, Ser. No. 36,466, which is a continuation-in-part of abandoned application Ser. No. 1,543, Jan. 8, 1970, which in turn is a continuation-in-part of abandoned application Ser. No. 866,743, Oct. 15, 1969, which also in turn is a continuation-in-part of abandoned application Ser. No. 630,808, Apr. 14, 1967. Divided and this application June 26, 1970, Ser. No. 59,854
Int. Cl. C07d *31/34*
U.S. Cl. 260—295 F **14 Claims**

Novel chemical compounds and non-toxic acid addition salts thereof are disclosed wherein the compounds have the formulas:



I II III

in which

R_1 is lower alkyl having 1 to 6 carbon atoms,

R_2 is alkyl having 1 to 20 carbon atoms or cycloalkyl-lower-alkyl, the cycloalkyl part having 3 to 8 carbon atoms, and

X is OH or a pharmaceutically acceptable salt including an alkali metal salt, or an ether or ester of the OH-group, exclusive of amino acid esters.

Compounds I and II possess beneficial pharmacodynamic activity with respect to the cardiovascular and central nervous system, and compounds III are intermediates for use in the preparation of compounds I and II.

3,707,475

ANTIINFLAMMATORY IMIDAZOLES

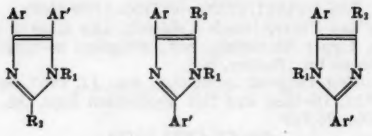
Joseph George Lombardino, Niantic, Conn., assignor to Pfizer Inc., New York, N.Y.

No Drawing. Filed Nov. 16, 1970, Ser. No. 90,077

Int. Cl. C07d *49/36*

U.S. Cl. 260—309 17 Claims

A novel class of antiinflammatory agents of the formulae



where Ar and Ar' are each furyl, thienyl, pyridyl, phenyl or substituted phenyl; R_1 is hydrogen, alkyl or alkenyl; R_2 is trifluoromethyl, alkyl, furyl, thienyl, pyridyl, phenyl or substituted phenyl and their pharmaceutically acceptable acid addition salts, as well as methods for their synthesis, are described.

3,707,476

3-ALKANOL DERIVATIVES OF 4H[1]BENZOPYRANO[3,4-d]ISOXAZOLES

Jules Freedman, Thiensville, Wis., assignor to Colgate-Palmolive Company, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 670,775, Sept. 26, 1970. This application Oct. 30, 1970, Ser. No. 85,799

Int. Cl. C07d *85/22*

U.S. Cl. 260—307 H 5 Claims

The compounds are derivatives of 3-alkanol-4H[1]benzopyrano[3,4-d]isoxazoles useful in the preparation of wood preservatives, mothproofing agents, pickling inhibitors and pharmaceutical agents. Representative of the compounds disclosed is 4H[1]benzopyrano[3,4 - d] isoxazole-3-methanol.

3,707,477

1,1,1-TRICHLORO-2-AMIDO-2-AMINO-ETHANES

Walter Ost, Klaus Thomas, and Dietrich Jerchel, Ingelheim am Rhein, Germany, assignors to C. H. Boehringer Sohn, Ingelheim am Rhein, Germany

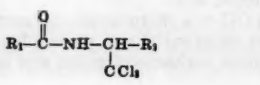
No Drawing. Filed Sept. 10, 1970, Ser. No. 71,262

Claims priority, application Germany, Sept. 11, 1969, P 19 46 112.2

Int. Cl. C07d *49/18, 49/36*

U.S. Cl. 260—309 2 Claims

Compounds of the formula



wherein

R_1 is hydrogen; alkyl of 1 to 17 carbon atoms; mono-, di- or tri-halo-substituted alkyl of 1 to 17 carbon atoms; alkenyl of 2 to 17 carbon atoms; alkoxy of 1 to 2 carbon atoms; phenyl; 2,4-dichlorophenoxymethyl; or α-(2,4-dichlorophenoxy)-ethyl; and

R_2 is disubstituted acyclic amino or optionally substituted monocyclic or bicyclic heterocyclic amino;

the compounds are useful as contact or systemic biocidal or biostatic agents, especially against mildew and various other fungi.

3,707,478

5-AROYL-2-(β-R_3-ETHYL)-1-LOWERALKYL-PYRROLES

John Robert Carson, Norristown, Pa., assignor to McNeil Laboratories, Inc.

No Drawing. Filed June 15, 1970, Ser. No. 46,522

Int. Cl. C07d *27/26*

U.S. Cl. 260—326.3 9 Claims

Compounds of the class of 5-aroyl-2-(β-R_3-ethyl)-1-loweralkyl-pyrroles useful as anti-inflammatory agents, said R_3 being various amino and amido functions.

3,707,479

3-AMINO-TETRAHYDRO THIOPHENE-3-CARBOXYLIC ACIDS AND 4-AMINO-TETRAHYDRO THIOPYRAN-4-CARBOXYLIC ACIDS

Gerhard R. Wendt, Havertown, and Donald W. Oliver, Phoenixville, Pa., assignors to American Home Products Corporation, New York, N.Y.

No Drawing. Filed July 23, 1971, Ser. No. 165,711

Int. Cl. C07d *63/04, 65/02*

U.S. Cl. 260—327 TH 5 Claims

S-oxides of 4-aminotetrahydro-2H-thiopyran-4-carboxylic acid and 3-amino-tetrahydro-3-thiophenecarboxylic acid are prepared. The compounds are intermediates for the synthesis of new penicillins.

3,707,480

NITROTHIOPHENE DICARBOXAMIDES

George L. Dunn, Wayne, and John R. E. Hoover, Glenside, Pa., assignors to Smith Kline & French Laboratories, Philadelphia, Pa.

No Drawing. Original application Aug. 28, 1968, Ser. No. 755,781, now Patent No. 3,639,613, dated Feb. 1, 1972. Divided and this application Mar. 4, 1971, Ser. No. 121,122

Int. Cl. A61k *27/00*; C07d *63/12, 63/16*

U.S. Cl. 260—332.2 C 1 Claim

Anti-coccidio and growth promoting compositions comprising optionally substituted nitrothiophene sulfonamides, nitrothiophene carboxamides, and nitrothiophene dicarboxamides.

3,707,481

PROCESS FOR PREPARING CYCLIC COMPOUNDS

Joseph T. Arrigo, Mount Prospect, and Allen K. Sparks, Des Plaines, Ill., assignors to Universal Oil Products Company, Des Plaines, Ill.

No Drawing. Filed Nov. 4, 1969, Ser. No. 874,069

Int. Cl. C07d *7/24*

U.S. Cl. 260—343.2 R 5 Claims

Cyclic compounds are prepared by treating an aryl-substituted unsaturated compound at reaction conditions

which include a temperature in the range of from about 50° to about 250° C. and a pressure in the range of from about atmospheric to about 500 atmospheres in the presence of a compound containing a metal selected from Group VIII of the Periodic Table.

3,707,482

CARBAMATE DERIVATIVES OF 2H-PYRAN-3(6H)-ONE

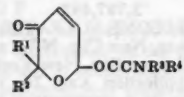
Real Laliberte, Laval, Quebec, Canada, assignor to Ayerst, McKenna and Harrison, Limited, St. Laurent, Quebec, Canada

No Drawing. Continuation-in-part of application Ser. No. 157,705, June 28, 1971, which is a division of application Ser. No. 28,540, Apr. 14, 1970. This application Nov. 2, 1971, Ser. No. 195,045

Int. Cl. C07d *7/20*

U.S. Cl. 260—345.8 **24 Claims**

Carbamates of the formula



in which R^1 represents an aromatic group such as phenyl, benzyloxyphenyl, 3,4 - xylyl, α-hydroxybenzyl, diphenylmethyl, 4-biphenylyl and 4'-chloro-4-biphenylyl; R^2 represents hydrogen, lower alkyl, chloromethyl, phenyl, and benzyl; or R^1 and R^2 together represent the cyclohexane ring attached in spiral fashion to the pyranone ring in such a manner that carbon atom 2 of the pyranone ring is common to the cyclohexane ring; R^3 is lower alkyl, phenyl of p-chlorophenyl, and R^4 is hydrogen, lower alkyl, phenyl or p-chlorophenyl, with the proviso that when R^1 is α-hydroxybenzyl R^4 is hydrogen.

The compounds are useful as antibacterial, fungicidal and coccidiostatic agents, and methods for their use and processes for preparing them are also disclosed.

3,707,483

FLUORINATED MONOGLYCIDYL ETHERS

Scott A. Reines, Fort Lee, N.J., assignor to the United States of America as represented by the Secretary of the Navy

No Drawing. Filed Feb. 4, 1971, Ser. No. 112,826

Int. Cl. C07d *1/18*

U.S. Cl. 260—348 R **4 Claims**

Fluorine-substituted benzyl monoglycidyl ethers and their precursors have been prepared containing a hexafluoroisopropyl group. These compounds are useful as coupling agents for bonding fluorinated monomers to chemically active surfaces, as fluorinated surface active agents, or as viscosity reducers for fluorinated epoxy resins.

3,707,484

PROCESS FOR THE PREPARATION OF 6-AZIDO-11β-HYDROXY-4,6-PREGNADIENES AND NOVEL INTERMEDIATES PRODUCED THEREBY

Richard C. Rausser, Union, and Elliot L. Shapiro, Cedar Grove, N.J., assignors to Schering Corporation, Bloomfield, N.J.

No Drawing. Filed June 15, 1971, Ser. No. 153,405

Int. Cl. C07c *173/10*

U.S. Cl. 260—349 **30 Claims**

An improved process for preparing pharmacologically active 6 - azido - 11β-hydroxy-4,6-pregnadiene-3,20-diones comprises preparing an 11β-acyloxy derivative of a 6α,7α-oxido-11β-hydroxy-4-pregnene-3,20-dione, said 11β-acyloxy being a member selected from the group consisting of 11β-formyloxy-, 11β-acetoxy- and 11β-halogenoacetoxy-; treating said 6α,7α-oxido-11β-acyloxy-4-pregnene-3,20-dione with an alkali metal azide in a non-reactive, organic solvent; treating the thereby formed 6β-azido-7α-hydroxy-11β-acyloxy-4-pregnene-3,20-dione or a 7α-ester thereof with concentrated hydrochloric acid in a lower alkanoic acid together with an inert solvent or, alternatively, treating a 7α-ester thereof with a tetraalkylammonium halide in an aprotic solvent, said 7α-ester being either a 7α-lower alkanoate or a 7α-hydrocarbonsulfonate; followed by hydrolysis of the 6-azido-11β-acyloxy-4,6-pregnadiene-3,20-dione thereby formed. If desired, hydrolysis of the 11-acyloxy may be carried out on the 6β-azido-7α-hydroxy-11β-acyloxy-4-pregnene-3,20-dione intermediate.

Intermediates described and claimed in this process are 6β - azido - 7α-hydroxy-11β-acyloxy-4-pregnene-3,20-diones, the 7α-esters thereof and 6-azido-11β-acyloxy-4,6-pregnadiene-3,20-diones.

3,707,485

2-(5-NITRO-FURYL-2)-5-AMINOETHOXY PYRIMIDINES

Klaus Gutsche, Rudolf Albrecht, Hans-Joachim Kebler, and Eberhard Schroder, Berlin, Germany, assignors to Schering Aktiengesellschaft, Berlin, Germany

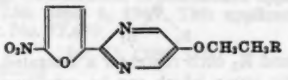
No Drawing. Filed July 16, 1970, Ser. No. 55,601

Claims priority, application Germany, July 19, 1969, P 19 37 629.5

Int. Cl. C07d *51/38*

U.S. Cl. 260—256.4 C **33 Claims**

Nitrofuryl-aminoalkoxy-pyrimidines of the formula



wherein R is a tertiary amino group and the corresponding quaternary ammonium salts have good activity against both *Trichomonas vaginalis* and *Candida albicans.*

3,707,486

TRIPHENYLMETHANE TETRAISOCYANATE DERIVATIVES

Gunter Oertel, Cologne-Flittard, Hans Holtschmidt, Leverkusen-Steinbuechel, Manfred Dollhausen, Hitdorf, and Eugen Bock, Leverkusen, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Nov. 24, 1969, Ser. No. 879,524

Claims priority, application Germany, Dec. 4, 1968, P 18 12 565.0

Int. Cl. C09b *11/04*

U.S. Cl. 260—389 **2 Claims**

Compositions useful as adhesives having improved bonding characteristics are prepared from natural or synthetic rubber binders and a diphenylmethane tetraisocyanate derivative.

3,707,487

6-CYANO-4,6-PREGNADIENES, METHODS FOR THEIR MANUFACTURE, AND INTERMEDIATES THEREOF

Thomas L. Popper, Verona, Hershel L. Herzog, Glen Ridge, and Elliot L. Shapiro, Cedar Grove, N.J., assignors to Schering Corporation, Bloomfield, N.J.

No Drawing. Filed Jan. 28, 1971, Ser. No. 110,742

Int. Cl. C07c *169/34*

U.S. Cl. 260—397.4 **8 Claims**

6-cyano-4,6-pregnadiene-3,20-diones having progestational activity are prepared from 6-oximinomethyl-4,6-pregnadiene-3,20-diones by treatment thereof with a dehydrating agent selected from the group consisting of phosphorus oxychloride, a lower alkanoic acid anhydride in pyridine, and a lower alkanoic acid anhydride in the presence of sodium acetate. Preferred compounds are 6-cyano-16-methylene-17α-lower alkanoyloxy-4,6 - pregnadiene-3,20-diones.

3,707,488
QUINONE-DIOL INTERMEDIATES FOR REDOX POLYMERS

Harold G. Cassidy, New Haven, Conn., Gerhard Wegner, Mainz, Germany, and Nobuo Nakabayashi, Tokyo, Japan, assignors to Research Corporation, New York, N.Y.

No Drawing. Original application Oct. 7, 1968, Ser. No. 765,612, now Patent No. 3,600,411. Divided and this application Mar. 4, 1971, Ser. No. 121,200
Int. Cl. C07c *49/64*
U.S. Cl. 260—396 R 3 Claims

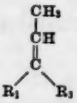
Novel redox polymers useful as antioxidants are prepared by the direct condensation of a quinone-diol with a diacyl chloride, phosgene or a diisocyanate.

3,707,489
PROCESS OF PREPARING ETHYLIDENE COMPOUNDS

Gerhard Teichmuller, Kurt Barnikol-Oettler, and Werner Hartmann, Jena, Germany, assignors to VEB Jenapharm, Jena, Germany

No Drawing. Filed Jan. 19, 1971, Ser. No. 107,847
Int. Cl. C07c *167/20*
U.S. Cl. 260—397.5 11 Claims

Process of preparing ethylidene compounds with different fundamental or parent substances having the structural formula:



(II)

wherein R_1 and R_2 each represent a saturated or unsaturated aliphatic group which can be substituted by functional groups and wherein R_1 and R_2 taken together can form an alicyclic group such as cyclopentyl, cyclohexyl and the like, or R_1 and R_2 can be joined together to form a condensed hydroaromatic group such as a perhydroindane, cyclopentano-perhydronaphthaline or cyclopentano-perhydrophenanthrene group, whereby the C—C bounds of the parent substance are preferably unsaturated and in steroid compounds the ring of the basic structure can be joined in either the cis- or transform which comprises reacting an easily hydrolyzable derivative of vinyl and ethinyl carbinol, as for instance an ether, having the formula:

(I)

wherein R_1 and R_2 are as above defined and R_3 is vinyl or ethinyl and R_4 is a trialkylsilyl or tetrahydropyranyl group with an alkali metal in the presence of a proton donor and liquid ammonia.

These compounds are particularly adapted for use as intermediates for use in preparing highly active steroid compounds, as for example, 19-nor pregnane derivatives.

3,707,490
PROCESS FOR PREPARING 1,3,5(10),6,8-PENTAENE STEROIDS AND INTERMEDIATES

John A. Edwards, Los Altos, and Jack Ackrell, Mountain View, Calif., assignors to Syntex Corporation, Panama, Panama

No Drawing. Filed Apr. 27, 1970, Ser. No. 32,367
Int. Cl. C07c *169/08*
U.S. Cl. 260—397.45 24 Claims

Process for preparing 1,3,5(10),8,11-pentaene and 1,3,5(10),6,8-pentaene steroids from 1,3,5(10),9(11)-tetraene steroids using a benzoquinone step followed by a dehydrogenation-hydrogenation sequence. The 1,3,5(10), 8,11-pentaenes are new and useful as estrogenic agents and intermediates. Other useful intermediates described are novel 12α-hydroxy(alkoxy)-1,3,5(10),9(11)-tetraene steroids. The overall conversion of $\Delta^{9(11)}$-estrone to equilenin is illustrated as representative of the invention.

3,707,491
INSECTICIDE WITH JUVENILE HORMONE ACTIVITY AND A PROCESS OF ITS PREPARATION

Miroslav Romanuk, Frantisek Sorm, and Karel Slama, Prague, Czechoslovakia, assignors to Ceskoslovenska Akademie Ved, Prague, Czechoslovakia

No Drawing. Filed Mar. 19, 1970, Ser. No. 21,219
Claims priority, application Czechoslovakia, Apr. 9, 1969, 2,503/69
Int. Cl. A01n *9/24*; C07c *57/02, 69/52*
U.S. Cl. 260—410.9 R 13 Claims

Hydrocarbon carboxylic acids and esters thereof having a terminal tertiary butyl group useful for control of insects.

3,707,492
SILICONE SULFATES

Edward L. Morehouse, New City, N.Y., assignor to Union Carbide Corporation, New York, N.Y.

No Drawing. Application Aug. 24, 1966, Ser. No. 574,576, which is a continuation-in-part of application Ser. No. 304,988, Aug. 27, 1963. Divided and this application Apr. 6, 1970, Ser. No. 26,130
Int. Cl. C07f *7/08, 7/10*
U.S. Cl. 260—448.2 N 3 Claims

Siloxanes containing at least 1 mole percent of a sulfatoorganoxyalkylsiloxy unit are disclosed. The siloxanes are useful as surfactants. A typical compound disclosed is

$$Me_3SiO[Me_2SiO]_9[(NH_4O_3SOCH_2)_2C(C_2H_5)CH_2—OC_3H_6SiMeO]_{5.6}[CH_3(OC_2H_4)_7OC_3H_6SiMeO]_{5.6}SiMe_3$$

3,707,493
COMPOUND 3-(p-BROMOPHENYL)-1-METHYL-1-METHOXYUREA

Rayner S. Johnson, Carrcroft, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Continuation-in-part of abandoned application Ser. No. 301,981, Aug. 14, 1963, which is a continuation-in-part of abandoned application Ser. No. 64,254, Oct. 24, 1960, which in turn is a continuation-in-part of abandoned application Ser. No. 733,213, May 5, 1958. This application Apr. 10, 1964, Ser. No. 358,947
Int. Cl. C07c *127/18*
U.S. Cl. 260—453 R 1 Claim

The compound 3-(p-bromophenyl) - 1 - methyl-1-methoxyurea, useful in weed control.

3,707,494
HERBICIDAL N-OCTAHYDRO-1,2,4-METHENO-PENTALENYL-(5)-UREAS

Claus Dieter Weis, Arlesheim, Basel-Land, and Jurg Rumpf, Binningen, Basel-Land, Switzerland, assignors to Geigy Chemical Corporation, Ardsley, N.Y.

No Drawing. Original application Dec. 18, 1967, Ser. No. 691,200, now Patent No. 3,555,086, dated Jan. 12, 1971. Divided and this application Sept. 4, 1970, Ser. No. 69,890
Claims priority, application Switzerland, Dec. 22, 1966, 18,376/66
Int. Cl. C07c *119/00*
U.S. Cl. 260—453 R 2 Claims

New herbicidal compounds of the formula

in which R_1 and R_2 represent hydrogen or certain substituents are described as particularly suitable for controlling weeds and undesirable grasses. Compositions containing these compounds as active ingredients in mixture with agriculturally acceptable carriers and a method of controlling weeds and undesirable grasses with the aid of such compounds or compositions containing them are also described, as well as novel intermediates which are methenopentalene derivatives from which the compounds of the above formula can be produced.

3,707,495

ISOCYANATE PREPARATION

Kenneth D. MacKay, Circle Pines, Edgar R. Rogier, Hopkins, and Maurice M. Kreevoy, Minneapolis, Minn., assignors to General Mills Chemicals, Inc.

No Drawing. Filed Oct. 5, 1970. Ser. No. 78,296

Int. Cl. C07c *119/04*

U.S. Cl. 260—453 P **11 Claims**

Organic isocyanates are prepared by (1) treating an acyl halide with a metal azide in the presence of a quaternary ammonium salt to accelerate the reaction and (2) decomposing the resulting acyl azide to the organic isocyanate.

3,707,496

ORGANIC ISOCYANATE PREPARATION

Arthur J. Coury, Minneapolis, Minn., assignor to General Mills Chemicals, Inc.

No Drawing. Filed Oct. 5, 1970, Ser. No. 78,198

Int. Cl. C07c *119/04*

U.S. Cl. 260—453 P **8 Claims**

Organic isocyanates are prepared in one step from acyl halides and metal azides using N-methyl-2-pyrrolidone as part of the reaction medium.

3,707,497

SULFONIC ACID CYANOVINYL ESTERS

Reimer Colln, Wuppertal-Elberfeld, and Paul-Ernst Frohberger, Leverkusen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed June 26, 1970, Ser. No. 50,332

Claims priority, application Germany, July 11, 1969, P 19 35 293.3

Int. Cl. C07c *143/68*

U.S. Cl. 260—456 R **6 Claims**

Alkyl, chloroalkyl or phenyl or benzyl (optionally substituted by 1 to 3 halo, lower alkyl and/or nitro substituents) sulfonic acid (optionally chloro) cyanovinyl esters, which possess fungicidal properties and which may be produced by conventional methods.

3,707,498

LUBRICATING OIL COMPOSITIONS

Daniel Milsom, Hightstown, N.J., assignor to Cities Service Oil Company

No Drawing. Filed Oct. 30, 1970, Ser. No. 85,745

Int. Cl. C10m *1/32, 1/38*

U.S. Cl. 252—33.6 **13 Claims**

Antioxidant additives for lubricating oils and lubricating oil compositions containing said antioxidant additives. The stability of lubricating oil compositions toward oxidizing conditions is markedly improved when an antioxidant additive comprising a mixture of a metal dialkyldithiocarbamate and a tertiaryalkyl primary amine is incorporated therein. The preferred additives comprise cadmium diamyldithiocarbamate or antimony dialkyldithiocarbamate plus a mixture of C_{18} to C_{22} tertiary-alkyl primary amines.

3,707,499

DIELECTRIC MATERIALS

Daniel W. Mason, West Peabody, Mass., and Henry H. Nester, deceased, late of Peabody, Mass., by Dianne L. Nester, special administratrix, Gloucester, Mass., assignors to Owens-Illinois, Inc.

No Drawing. Filed June 5, 1970, Ser. No. 43,941

Int. Cl. C04b *35/00;* **H01b** *1/06, 3/02*

U.S. Cl. 252—63.5 S **8 Claims**

A dielectric material is formulated by firing an admixture of from about 2–55% by weight zircon (zirconium silicate) and about 45–98% by weight of a lead barium borosilicate glass. In final form, the dielectric material exhibits a low K (approximately 6) and a high Q value. The paste composition is formulated by admixing the aforementioned ingredients in an organic vehicle, drying the paste and firing the paste at a temperature of from about 800–1,000° C. The paste is usually applied by a screen printing technique preferably using a mesh size in the range of about 165.

3,707,500

FUNCTIONAL FLUID COMPOSITION

Joseph J. Romano, New City, N.Y., and John J. Shatynski, Hillside, N.J., assignors to Stauffer Chemical Company, New York, N.Y.

No Drawing. Continuation of abandoned application Ser. No. 665,736, Sept. 6, 1967. This application Oct. 5, 1970, Ser. No. 77.675

Int. Cl. C09k *3/00*

U.S. Cl. 252—78 **6 Claims**

A functional fluid composition comprising a homogeneous mixture of materials consisting essentiallly of trialkyl phosphate, tricresyl phosphate, trixylenyl phosphate, a viscosity index improver, rust inhibitor, metal deactivator, a dye and an antifoam agent.

3,707,501

HYDRAULIC FLUIDS CONTAINING CERTAIN QUATERNARY PHOSPHONIUM SALTS OF PHOSPHORUS ACIDS

William F. Gentit, Mohegan Lake, and Fred Jaffe, Briarcliff Manor, N.Y., assignors to Stauffer Chemical Company, New York, N.Y.

No Drawing. Filed June 29, 1970, Ser. No. 51,001

Int. Cl. C09k *3/00;* **C23f** *11/10*

U.S. Cl. 252—78 **17 Claims**

Data obtained in a modified Boeing wear apparatus revealed that aircraft hydraulic fluids containing a phosphate ester base stock and a small percentage of methyl trioctyl phosphonium dimethyl phosphate exhibit superior wear-erosion characteristics when compared with the same formulations containing either small percentages of water or no additive.

3,707,502

DETERGENT COMPOSITION

John Rawlinson, Lusaka, Zambia, assignor to Lever Brothers Company, New York, N.Y.

No Drawing. Filed Dec. 7, 1970, Ser. No. 95,942

Int. Cl. C11d *7/38*

U.S. Cl. 252—99 **6 Claims**

Detergent compositions containing sodium nitrilotriacetate, peroxy-compounds, and alkali-metal salts of mono- and dihydroxamic acids, are disclosed. The hydroxamic acid salts are effective inhibitors against the corrosion of copper and its alloys by aqueous solutions of such detergent compositions.

3,707,503

STABILIZED LIQUID DETERGENT COMPOSITION

Terrence G. Kenny, Park Ridge, N.J., assignor to Lever Brothers Company, New York, N.Y.

No Drawing. Filed Nov. 25, 1970, Ser. No. 92,855

Int. Cl. C11d 9/30

U.S. Cl. 252—117 4 Claims

Stable controlled sudsing heavy-duty liquid detergent compositions containing anionic detergents such as biodegradable alkyl or alkaryl sulfonates and sulfates or alkylpolyethoxy sulfonates are provided by the inclusion of small amounts of an alkali metal salt of a fatty acid such as myristic or coco fatty acids or mixtures thereof, in combination with an alkanolamide such as lauric diethanolamide. The weight ratio of fatty acid to alkanolamide is about 1:2 or 1:11.

3,707,504

DETERGENT COMPOSITION CONTAINING PROTEOLYTIC ENZYME ELABORATED BY *THERMOACTINOMYCES VULGARIS* ATCC 15734

Charles E. Johnson, Springfield Township, Hamilton County, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

No Drawing. Filed Dec. 19, 1969, Ser. No. 886,793

Int. Cl. C11d 3/04, 3/06, 7/42

U.S. Cl. 252—135 4 Claims

A detergent composition useful for ordinary household laundry and dishwashing applications composed of a synthetic detergent and an effective amount of a proteolytic enzyme elaborated by *Thermoactinomyces vulgaris* ATCC 15734.

3,707,505

ENZYME-CONTAINING DETERGENT COMPOSITION

Itsutoshi Maeda, Yasuichi Nomura, Kohei Hashimoto, Akira Shimizu, Koji Mitsugi, and Ryonosuke Yoshida, Kanagawa-ken, Japan, assignors to Ajinomoto Co., Inc., Toyko, Japan

No Drawing. Filed Dec. 28, 1970, Ser. No. 102,182

Claims priority, application Japan, Dec. 30, 1969, 45/1,752

Int. Cl. C11d 3/04

U.S. Cl. 252—136 7 Claims

The enzymes present in an enzyme-bearing detergent composition are stabilized by small amounts of N-acyl amino acids whose acyl groups are derived from saturated or unsaturated fatty acids having 6 to 20 carbon atoms, and the enzymes are also stable in detergents in which the N-acyl amino acids are the primary surfactant ingredients.

3,707,506

NONIONIC DETERGENT COMPOSITIONS FOR CLEANING POLYESTER FABRICS

William Lozo, Trenton, Mich., assignor to BASF Wyandotte Corporation, Wyandotte, Mich.

No Drawing. Filed Aug. 19, 1968, Ser. No. 753,787

Int. Cl. C11d 1/68; D06l 1/02, 1/12

U.S. Cl. 252—139 6 Claims

An aqueous washing solution of water and about 0.01 to 5.0 percent by weight of a detergent composition of A about 20 to 80 percent by weight of a mixture of (1) nonionic surface active agent selected from the class consisting of primary oxyalkylated aliphatic alcohols having from about 8 to 22 carbon atoms in the aliphatic portion and about 3 to 50 oxyalkylene units in the oxyalkylene portion and (2) nonionic surface active agent selected from the class consisting of secondary oxyalkylated aliphatic alcohols having from about 8 to 22 carbon atoms in the aliphatic portion and about 3 to 50 oxyalkylene units in the oxyalkylene portion and B about 80 to 20 percent by weight kerosene.

3,707,507

MERCAPTONITRILES FOR THE REMOVAL OF TARNISH ON METALS

Ralph P. Williams, Bartlesville, Okla., assignor to Phillips Petroleum Company

No Drawing. Filed Jan. 18, 1971, Ser. No. 107,580

Int. Cl. C11d 7/06

U.S. Cl. 252—156 10 Claims

Mercaptonitriles are effective for the removal of corrosion products such as tarnish from metals other than ferro and alumino metals, such as copper, silver, tin, lead, zinc, cadmium, and alloys thereof.

3,707,508

ANTI-SOIL REDEPOSITION COMPOSITION FOR DRYCLEANING

Rodney A. Blomfield, Painesville, Ohio, assignor to Diamond Shamrock Corporation, Cleveland, Ohio

No Drawing. Continuation-in-part of abandoned application Ser. No. 4,751, Jan. 21, 1970. This application July 12, 1971, Ser. No. 161,977

Int. Cl. C09d 9/00; C11d 7/22, 7/50

U.S. Cl. 252—162 5 Claims

The presence of a small amount of calcium chloride in a detergent-containing drycleaning solvent will reduce the redeposition of soils onto textile fabric.

3,707,509

PROCESS FOR THE PREPARATION OF A CATALYST OF THE PLATINUM/ALUMINA TYPE FOR REFORMING AROMATIZATION AND ISOMERIZATION

Eugenia Georgescu, Ion Ghejan, Victor Bucur, Teodora Mazare, Ion Zirna, and Elena Lygia Popescu, Ploesti, Andrian Budu, Bucharest, and Bujor Olteanu, Traian Mircea Filotti, and Marius Aurel Barbul, Ploesti, Rumania, assignors to Institutul de Cercetari Pentru Prelucrarea Titeiului, Ploiesti, Rumania

No Drawing. Filed Apr. 1, 1970, Ser. No. 24,846

Claims priority, application Rumania, Apr. 8, 1969, 59,668

Int. Cl. B01j 11/78

U.S. Cl. 252—441 3 Claims

A process for producing platinum-on-alumina catalyst for the reforming, aromatization and isomerization of paraffinic hydrocarbons, comprising:

(a) Treating an alumina support with chloroplatinic acid or other soluble platinum-group compound in the presence of carbonic acid;

(b) Maintaining the platinum-containing support in a reducing or inert medium at a temperature of 300 to 500° C. for 8 to 15 hours;

(c) Halogenating the catalyst in a reducing or inert medium; and

(d) Effecting an oxidizing treatment upon the catalyst.

3,707,510

CATALYST STRUCTURE FOR THE DECOMPOSITION OF HYDRAZINE AND HYDRAZINE DERIVATIVES AND METHOD FOR ITS PREPARATION

Reinhard Sasse, Neuenstadt, Germany, assignor to Messerschmitt-Bolkow-Blohm Gesellschaft mit beschrankter Haftung, Munich, Germany

No Drawing. Filed Mar. 25, 1970, Ser. No. 22,709

Claims priority, application Germany, Mar. 29, 1969, P 19 16 247.1

Int. Cl. B01j *11/06*

U.S. Cl. 252—462 7 Claims

A catalyst structure suitable for catalyzing the decomposition of hydrazine and hydrazine derivatives comprises a customary catalyst body which is imparted with an activating coating for increasing and inducing the catalyst activity. The activating coating comprises oxides of copper and cobalt and at least one of the oxides of thorium, cerium, or cerium-rare earth metals. The catalyst body proper may be made from cobalt-aluminum or nickel-aluminum alloy from which the aluminum has been dissolved by alkaline dissolution. Chromium-nickel steel may also be used as the catalyst body.

3,707,511

ANIONIC DETERGENT COMPOSITIONS CONTAINING FOAM BOOSTING SUCCINIC ACID DERIVATIVES

Vincent Lamberti, Upper Saddle River, N.J., Henry Lemaire, Westport, Conn., and Arno Cahn, Pearl River, N.Y., assignors to Lever Brothers Company, New York, N.Y.

No Drawing. Original application June 13, 1967 Ser. No. 645,636. Divided and this application Sept. 3, 1970, Ser. No. 69,482

Int. Cl. C11d *1/10, 1/37, 1/83*

U.S. Cl. 252—546 6 Claims

This disclosure relates to water-soluble nitrogen-containing derivatives of succinic acid characterized by an alkyl or 2-alkenyl substituent containing from 10 to 16 carbon atoms therein. These compounds are useful as suds-boosters, suds-stabilizers, and as active detergents. The specification discloses the preparation of these compounds and their use in conjunction with various detergents.

3,707,512

GLYCOSE HYDROCARBON SULFONATE SURFACTANTS

Roy A. Gray, Edmund T. Kittleman, and Gardner C. Ray, Bartlesville, Okla., assignors to Phillips Petroleum Company

No Drawing. Original application Jan. 3, 1969, Ser. No. 788,958, now Patent No. 3,632,804. Divided and this application Dec. 30, 1970, Ser. No. 102,933

Int. Cl. C11d *1/12*

U.S. Cl. 252—554 1 Claim

The use in a synthetic detergent composition of a surface active detergent ingredient which is a glycose hydrocarbonsulfonate wherein the hydrocarbon moiety is an alkyl or cycloalkyl radical containing from 6 to 25 carbon atoms.

3,707,513

METHOD FOR PREPARING ALKYLENE OXIDE POLYMERS

Katsuji Ueno and Takao Oshima, Osaka, Japan, assignors to Sumitomo Chemical Co., Ltd., Osaka, Japan

No Drawing. Filed Aug. 5, 1970, Ser. No. 61,507

Claims priority, application Japan, Aug. 5, 1969, 44/62,148

Int. Cl. C08g *23/14*

U.S. Cl. 260—2 A 9 Claims

A mono-oxirame compound polymer or copolymer is prepared by polymerizing at least one mono-oxirane compound in the presence of a ternary catalyst system comprising an organo-aluminum compound, orthophosphoric acid, and a compound represented by the general formula $M(NR_2')_3$ wherein M is phosphorus, arsenic or antimony, and R' is a hydrocarbon radical.

3,707,514

SYNTHETIC ORGANIC PIGMENTS AND METHOD FOR THEIR PRODUCTION

Anthony E. Vassiliades, Deerfield, Shrenik Shroff, Lake Forest, and Edward F. Nauman, Chicago, Ill., assignors to Champion International Corporation, New York, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 786,337, Dec. 23, 1968. This application Nov. 6, 1970, Ser. No. 87,654

Int. Cl. B01j *13/02;* C08j *1/14*

U.S. Cl. 260—2.5 F 20 Claims

Synthetic organic pigments are provided by the activation of precursor microcapsules formed by the addition of a partially condensed formaldehyde resin to an admixture of an aqueous solution of a hydrophobic starch and an oily material and coated onto a substrate.

3,707,515

PROCESS FOR 11-CYANO-9,10-ETHENOANTHRACENES

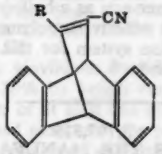
Charles Ferdinand Huebner, Chatham, N.J., assignor to Ciba-Geigy Corporation

No Drawing. Filed July 2, 1970, Ser. No. 52,109

Int. Cl. C07c *12/64*

U.S. Cl. 260—465 K 7 Claims

Process for the preparation of 11-cyano-9,10-ethenoanthracenes, e.g. those of the formula



R=H, etherified or esterified OH, aliphatic, araliphatic or aromatic radical,

by dehydrohalogenation of the corresponding 11-halo-11-cyano-9,10-ethanoanthracenes, intermediates in the synthesis of valuable antidepressants.

3,707,516

COATING COMPOSITION OF AN ACRYLIC-EPOXY GRAFT COPOLYMER

Aloysius N. Walus, Flint, Mich., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Apr. 28, 1971, Ser. No. 138,363

Int. Cl. C08g *45/08;* C09d *3/52, 3/58*

U.S. Cl. 260—21 12 Claims

The novel coating composition consists essentially of a graft copolymer dissolved in an organic solvent wherein

the backbone of the graft copolymer is of polymerized constituents of methyl methacrylate, acrylonitrile, styrene or mixtures thereof, and also can contain polymerized α,β-unsaturated acid constituents; the copolymer has grafted into the backbone through polymerized units of α,β-unsaturated carboxylic acids side chains of an epoxy ester of an epoxy resin and a drying oil and an epoxy ester of an epoxy resin, a dicarboxylic acid and an epoxy resin. The composition forms a high quality coating and is useful as a sealerless primer, as a sealer or a primer surfacer composition in the manufacture of automobiles and trucks.

3,707,517

ELIMINATION OF BROWN SCUM IN TETRAFLUOROETHYLENE POLYMER AQUEOUS DISPERSIONS

David Alan Holmes, Vienna, W. Va., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Sept. 15, 1970, Ser. No. 72,500

Int. Cl. C08f *45/24*

U.S. Cl. 260—29.6 F **5 Claims**

The brown scum which forms on the surface of basic aqueous dispersions of tetrafluoroethylene polymer which contain nonionic surfactant for stabilizing the dispersion can be eliminated by adding an iron-solubilizing agent such as citric acid to the dispersion.

3,707,518

ACRYLATE ADHESIVE TAPE AND COMPOSITION

Cyrus W. Bemmels, North Brunswick, and Donald F. Doehnert, Millington, N.J., assignors to Johnson & Johnson

Original application July 11, 1968, Ser. No. 744,123, now Patent No. 3,617,362, dated Nov. 2, 1971. Divided and this application Sept. 25, 1970, Ser. No. 75,659

Int. Cl. C08f *45/24, 45/34*

U.S. Cl. 260—29.6 NR **2 Claims**

A self cross-linking pressure-sensitive acrylate adhesive and tape based on an adhesive copolymer of monomers comprising a major amount of a medium chain length alkyl acrylate monomer and preferably a minor amount of a cohesion inducing short chain monomer, plus a very small amount of an alkoxy silyl polymerizable cross-linking monomer and a relatively small amount, i.e., about 2-6 parts by weight of the total monomer solids, of a catalytic acid monomer selected from the group consisting of acrylic acid, methacrylic acid, and itaconic acid. The catalytic acid monomer acts as a built-in or internal catalyst which causes the adhesive copolymer to be self cross-linking. A stabilization system for this self cross-linking system also is disclosed.

3,707,519

PROCESS FOR THE MANUFACTURE OF STABILIZED POLYTETRAFLUOROETHYLENE DISPERSIONS

Helmut Hahn, Burghausen, Salzach, Germany (% Farbwerke Hoechst AG., Frankfurt am Main, Germany)

No Drawing. Continuation of abandoned application Ser. No. 767,814, Oct. 15, 1968. This application Feb. 8, 1971, Ser. No. 113,650

Claims priority, application Germany, Oct. 21, 1967, F 53,863

Int. Cl. C08f *3/24, 45/28*

U.S. Cl. 260—29.6 F **3 Claims**

The present invention relates to aqueous dispersions of polytetrafluoroethylene which are stabilized by means of terpene hydrocarbons. The stabilized dispersions are obtained by polymerizing tetrafluoroethylene in the presence of 2 to 25 p.p.m., calculated on the total reaction mixture, of terpene hydrocarbons. The dispersions may contain up to 25% by weight of colloidal polytetrafluoroethylene.

3,707,520

POLYMERS OF CYCLOPENTENE OBTAINED BY POLYMERIZING TO A PREDETERMINED CONVERSION AND ADDING MONO OR DIOLEFIN THERETO

Gottfried Pampus, Leverkusen, Josef Witte, Cologne, and Günter Marwede, Leverkusen, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Mar. 9, 1970, Ser. No. 17,926

Claims priority, application Germany, Mar. 27, 1969, P 19 15 684.4

Int. Cl. C08f *1/28, 7/02, 45/28*

U.S. Cl. 260—33.6 AQ **4 Claims**

Two-stage process for producing cyclopentene polymers, wherein cyclopentene is polymerised in a solvent in the presence of a metal-organic mixed catalyst to a conversion of 40 to 90% by weight, an olefin or diolefin is added and polymerisation is completed.

3,707,521

POLYURETHANE SEALANT-PRIMER SYSTEM ISOCYANATE-REACTIVE SURFACE PRIMER COMPOSITION FOR POLYURETHANE SEALANTS

G. William De Santis, East Brunswick, N.J., assignor to Essex Chemical Corporation, Clifton, N.J.

No Drawing. Filed Mar. 5, 1970, Ser. No. 16,924

Int. Cl. C08g *51/08*

U.S. Cl. 260—37 N **4 Claims**

Polyurethane sealant-primer system comprising an isocyanate-reactive surface primer composition and a moisture-curable polyurethane sealant composition; method of making cured polyurethane seals with said system; cured polyurethane seals produced thereby.

3,707,522

POLYAMIDE COMPOSITION AND PROCESS

Frank Holmes Simons, Charlotte, N.C., assignor to Fiber Industries, Inc.

Original application June 27, 1968, Ser. No. 740,762, now Patent No. 3,583,949, which is a continuation-in-part of application Ser. No. 621,867, Mar. 9, 1967, now Patent No. 3,557,544. Divided and this application Apr. 8, 1971, Ser. No. 132,304

Int. Cl. C08g *20/20, 51/04*

U.S. Cl. 260—37 N **2 Claims**

Shaped articles of a poly(hexamethylene adipamide) (nylon 6,6) fiber-forming composition is described, which articles have improved physical and chemical properties. The nylon 6,6 composition is a copolymer of primarily hexamethylene adipamide and a small but effective amount of ϵ-caprolactam. The amount copolymerized with the hexamethylene diammonium adipate is less than that which substantially affects normal nylon 6,6 characteristics yet is sufficient to improve processibility through spinning, drawing and beaming, dye uniformity, and mechanical quality. The continuous polymerization of the present composition is also described as well as the method of spinning said compositions.

3,707,523

POLLUTION CONTROL IN PHOSPHATE SLIME DISPOSAL

Howard Patrick Ledden, Rowayton, Conn., and Klaus Muller, Cranbury, N.J., assignors to American Cyanamid Company, Stamford, Conn.

No Drawing. Filed Aug. 19, 1970, Ser. No. 65,284

Int. Cl. E02d *3/12*

U.S. Cl. 260—41 R **1 Claim**

Presorption of small amounts of anionic polyelectrolyte flocculants such as a 35% hydrolyzed-COONa-polyacrylamide of about 15 million weight average molecular weight onto sand tailings from the processing of phosphate ore improves the subsequent settling and solidification on mixing with phosphate slimes. The rate of settling, homogeneity and filterability of the settled slime-sand layer are

improved under many conditions of slime concentration, sand to slime ratio and flocculant to slime ratio. Anionic flocculants are better than nonionics or cationics. Fly ash can be used as a siliceous substrate to replace sand, and although there are similarities to sand, the response to the cationic-anionic character of the polyelectrolyte is different.

3,707,524

SINGLE-PHASE COMPOSITES OF CHLORAL POLYMERS AND COPOLYMERS WITH ADDITION POLYMERS

Otto F. Vogl, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Continuation-in-part of applications Ser. No. 558,631, June 20, 1966, Ser. No. 580,217, Sept. 19, 1966, Ser. No. 731,622, May 23, 1968, and Ser. No. 886,739, Dec. 19, 1969. This application June 2, 1970, Ser. No. 42,877

Int. Cl. C08f *15/12, 29/26, 45/02*

U.S. Cl. 260—41 B **20 Claims**

Described are fire resistant single-phase composites of chloral homopolymers, chloral/isocyanate copolymers, and chloral/ketene copolymers with addition polymers. The products are useful as architectural panels.

3,707,525

FLAME RETARDANT EPOXY RESINS

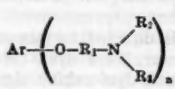
Lucien Sobel, Paris, Ludovic Parvi, Pont-de-Claix, and Arsene Isard, Grenoble, France, assignors to Ugine Kuhlmann, Paris, France

No Drawing. Continuation-in-part of application Ser. No. 820,310, Apr. 29, 1969. This application July 14, 1970, Ser. No. 54,869

Int. Cl. C08g *30/14*

U.S. Cl. 260—47 EA **9 Claims**

Flame retardant epoxy resins comprising a polyhalogenated aromatic amine having the general formula:



in which $n=1$ to 4, Ar is a polyhalogenated aromatic radical, R_1 is an aliphatic or cycloaliphatic radical and R_2 and R_3 are hydrogen or an aliphatic, or a glycidyl radical or cycloaliphatic or heterocyclic alkyl radical. The amines are prepared by reacting a polyhalogenated aromatic compound with either an alcoholate of an amino alcohol or with the amino alcohol in the presence of an alkaline agent. Glycidyl radicals are attached by reaction with epichlorohydrin or the like.

3,707,526

RESINS PRODUCED FROM THE REACTION OF EPOXIDES AND DIMETHYLOL-PROPIONIC ACID

John Allister Gannon and Arthur Allen Tracton, Toms River, N.J., assignors to Ciba-Geigy Corporation, Ardsley, N.J.

No Drawing. Continuation-in-part of application Ser. No. 789,948, Jan. 8, 1969. This application Nov. 16, 1970, Ser. No. 90,014

Int. Cl. C08g *30/12*

U.S. Cl. 260—47 EA **16 Claims**

Coating systems applicable by conventional coating techniques as well as by electrophoretic coating are provided by reacting a hydroxycarboxylic acid such as dimethylolpropionic acid with an epoxy resin and optionally any of a dibasic acid and a diol in the absence of an externally added esterification catalyst and curing the thus obtained product. A variety of coating systems is obtained including water-soluble resins obtained by neutralizing with an amine the reaction product prior to curing.

3,707,527

TRIFUNCTIONAL ISOCYANATES PREPARED FROM TRIGLYCIDYL ISOCYANURATE AND DIISOCYANATES

Manfred Budnowski, Dusseldorf-Holthausen, and Edgar Lieske, Dusseldorf, Germany, assignors to Henkel & Cie GmbH, Dusseldorf-Holthausen, Germany

No Drawing. Filed Dec. 16, 1970, Ser. No. 98,866

Claims priority, application Germany, Dec. 20, 1969, P 19 63 899.4

Int. Cl. C08g *22/22, 22/34, 45/00*

U.S. Cl. 260—77.5 NC **10 Claims**

Trifunctional isocyanates prepared by the reaction of crystalline triglycidyl isocyanurate having an epoxide oxygen content in excess of 14% with 1 mol for each epoxide oxygen in said crystalline triglycidyl isocyanurate, of an organic diisocyanate free of other substituents capable of reacting with epoxide oxygen under anhydrous conditions at a temperature above 100° C. and below the decomposition temperature of the reactants. The invention also relates to the method of preparing the trifunctional isocyanates and the use of the same as hardenable compounds.

3,707,528

RECOVERY OF POLY(ARYLENE SULFIDE) REACTION SLURRY CONSTITUENTS

John M. Miles, Bartlesville, Okla., assignor to Phillips Petroleum Company

Filed Jan. 12, 1971, Ser. No. 105,902

Int. Cl. C08g *23/00*

U.S. Cl. 260—79 **6 Claims**

An economically improved method for recovery of poly(arylene sulfide) substantially free of impurities and organic polar diluent from a reaction slurry of poly(arylene sulfide) solid polymer particles, organic polar diluent, by-product alkali metal halide, and other impurities is provided by the atmospheric adiabatic evaporation of organic polar diluent from a reaction slurry of high sensible heat content prior to processing poly(arylene sulfide) solid polymer particles to remove other impurities.

3,707,529

ELASTOMERIC VINYLIDENE FLUORIDE POLYMERS WITH 55–95 PERCENT NON-IONIC END GROUPS

Edward K. Gladding, Wilmington, and Jack L. Nyce, Newark, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Sept. 4, 1970, Ser. No. 69,900

Int. Cl. C08f *15/06, 15/40*

U.S. Cl. 260—80.77 **4 Claims**

An elastomeric vinylidene fluoride polymer consisting essentially of 30–70% by weight vinylidene fluoride units and 70–30% units of at least one other fluorinated ethylenically unsaturated monomer, the polymer having a 55–95 molar percent non-ionic end-group concentration and an inherent viscosity of 0.4 to 1.1 at 30° C. at a concentration of 0.1% by weight in a mixed solvent of 86.1% by weight tetrahydrofuran and 13.9% by weight dimethylformamide.

3,707,530

METHOD FOR PRODUCING POLYMERS OF ETHYLENE

Benedetto Calcagno, Milan, Paolo Colombo, Saronno, and Giovanni Livraghi, Milan, Italy, assignors to Società Italiana Resine S.p.A., Milan, Italy

No Drawing. Filed Nov. 19, 1969, Ser. No. 878,201

Claims priority, application Italy, Nov. 23, 1968, 24,086A/68

Int. Cl. C08f *1/42, 3/06*

U.S. Cl. 260—94.9 E **1 Claim**

A process for the preparation of ethylene polymers which comprises contacting at temperatures between 50°

and 80° C. and a pressure ranging from below atmospheric pressure up to five atmospheres, gaseous ethylene with a catalytic solution of a member selected from the group consisting of a saturated aliphatic hydrocarbon solvent, a cyclo-aliphatic hydrocarbon solvent, and an aromatic hydrocarbon solvent, and a three-component system selected from the group consisting of:

(a) a member selected from the group consisting of vanadium oxychloride and vanadium oxyacetyl acetonate;

(b) titanium tetrachloride; and

(c) a member selected from the group consisting of an aluminum dialkylchloride of the formula AlR_2Cl, an aluminum alkyl dichloride of the formula $AlRCl_2$, and an alkyl aluminum sesquichloride of the formula $Al_2R_3Cl_3$;

wherein R represents an alkyl radical having from 1 to 10 carbon atoms, said atomic ratio between said vanadium and said titanium ranging between 0.075 and 0.3, said atomic ratio between said aluminum and said vanadium ranging between 4 and 15, and said catalytic solutions being prepared by:

(1) contacting in said hydrocarbon solvent, catalysts (a) and (b) with 20–80% by weight of the overall three-component catalytic system of catalyst (c), at a temperature of from −20° to +20° C.,

(2) ripening said solution during a period of from 1–25 hours and at a temperature of from −20° to +20° C., and

(3) adding, after the ripening period, the remaining quantity of catalyst (c) at a temperature of from 50–120° C.

3,707,531

METHOD OF COLLECTING PROTEIN SUBSTANCES HAVING BIOLOGICAL ACTIVITY WITH RESPECT TO THE NERVOUS SYSTEM COMPRISING EXTRACTION OF PROTEIN FROM SUBMAXILLARY GLANDS

Masaaki Yamamoto, Kawasaki, and Tsuneyuki Nakazawa, Omiya, Japan, assignors to Teikoku Hormone Mfg. Co., Ltd., Tokyo, Japan

Division of application Ser. No. 838,025, June 19, 1969, now Patent No. 3,549,610, which is a continuation of application Ser. No. 531,001, Mar. 1, 1966, now abandoned. This application Aug. 4, 1970, Ser. No. 60,931

Claims priority, application Japan, Mar. 3, 1965, 40/12,278

Int. Cl. C07g 7/00

U.S. Cl. 260—112 R **3 Claims**

A process for the recovery of protein substances having a biological activity to promote the growth and development of the nervous system which comprises (a) extracting the submaxillary glands of large animals, i.e. bovine, equine and swine, with an aqueous extracting agent selected from water and saline solution; (b) adding to the extracted solution sulfosalicylic acid or sodium salt to form a solution having a concentration of 1–2% and adjusting the pH of the solution to 3.0–4.0 and collecting the resulting precipitates; (c) dissolving such collected precipitates in an aqueous solution; and (d) subjecting the aqueous solution formed in (c) to fractional precipitation with acetone or alcohol in a concentration of 40–50% and collecting the fractional precipitates containing the protein substance. A protein substance (S) and a protein substance (F) can be further produced by acrinol precipitation of the redissolved protein substance.

3,707,532

AZO DYESTUFFS CONTAINING A BENZTHIAZOLYL GROUP

Klaus Artz, Muttenz, and Visvanathan Ramanathan and Peter Moser, Basel, Switzerland, assignors to Ciba-Geigy AG, Basel, Switzerland

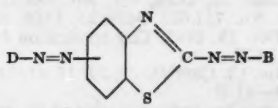
No Drawing. Filed Dec. 23, 1969, Ser. No. 887,727

Claims priority, application Switzerland, Jan. 3, 1969, 11/69; June 11, 1969, 8,897/69

Int. Cl. C09b 31/04

U.S. Cl. 260—158 **3 Claims**

Azo dyestuffs that are free from acidic groups imparting solubility in water and that correspond to the formula



in which D represents a benzene residue that may be substituted or the residue of a coupling component, and B represents the residue of a coupling component free from acidic groups imparting solubility in water.

3,707,533

PHENYL-AZO-PHENYL DISPERSE DYES

Raymond Joseph Pohl, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Jan. 31, 1967, Ser. No. 612,791

Int. Cl. C07c 107/06; C09b 29/08

U.S. Cl. 260—207 **10 Claims**

This invention is directed to monoazo disperse dyes, process and polyester fibers dyed therewith, as hereinafter described, which dyes exhibit significantly desirable light fastness, bloom, temperature sensitivity, scourability, crock-, wash-, ozone-, and gas-fume fastness. Further, the dyes of this invention achieve superior sublimation and superior perspiration fastness when applied to polyester-cellulosic blend fabrics which fabrics are subjected to durable press treatment.

3,707,534

METHOD FOR PRODUCTION OF LACTULOSE CONCENTRATE

Ernst Nitsch and Siegfried Muhlbock, Linz, Austria, assignors to Laevosan-Gesellschaft Chem. Pharm. Industrie Franck & Dr. Freudl, Linz (Danube), Austria

No Drawing. Filed Feb. 9, 1970, Ser. No. 9,978

Claims priority, application Austria, Feb. 7, 1969, A 1,256/69

Int. Cl. C07c 47/18

U.S. Cl. 260—209 R **7 Claims**

A method of preparing a lactulose concentrate by epimerization of a hot aqueous lactose solution which comprises admixing a hot aqueous concentrated solution of lactose with between about 0.05 and 0.5 mol of at least one sulfite selected from the group consisting of alkali sulfites and alkaline earth sulfites per kg. of lactose monohydrate content of said lactose solution, and maintaining the admixture of said sulfite and said lactose solution at a temperature between about 80° C. and 110° C. to convert lactose in said lactose solution into lactulose.

3,707,535

PROCESS FOR PREPARING MONO- AND POLYGLYCOSIDES

Baak W. Lew, Ardentown, Del., assignor to Atlas Chemical Industries, Inc., Wilmington, Del.

No Drawing. Filed July 24, 1969, Ser. No. 844,651
Int. Cl. C07c *47/18*
U.S. Cl. 260—210 R 11 Claims

Disclosed is an improved process for the preparation of glycosides which comprises reacting a compound selected from a group consisting of monosaccharides and compounds hydrolyzable to monosaccharides with a monohydric alcohol having from 8 to 25 carbon atoms, in the presence of an acid catalyst and in the presence of a solvent which is an aliphatic ether alcohol having a boiling point at atmospheric pressure of no more than about 200° C. The glycosides produced by the improved process of the present invention may be employed for a variety of purposes such as detergents, gelling agents, lubricants, wetting agents, dyeing assistants, textile softeners, and food emulsifiers.

3,707,536

PROCESS FOR THE ISOLATION AND PURIFICATION OF S-ADENOSYL METHIONINE AND ETHIONINE AND NOVEL SULFATES THEREOF

Erich Haid and Michael Nelboeck-Hochstetter, Tutzing, Upper Bavaria, Germany, assignors to Boehringer Mannheim G.m.b.H., Mannheim-Waldhof, Germany

No Drawing. Filed Apr. 13, 1970, Ser. No. 27,994
Int. Cl. C07d *51/54*
U.S. Cl. 260—211.5 R 12 Claims

S-adenosyl - 1 - methionine and S-adenosyl-1-ethionine are obtained from yeast in substantially pure form and in high yield by subjecting the yeast to acid digestion and cation exchange chromatography and to either one or both of the process steps of (1) picric acid precipitation and (2) boric acid addition to give a borate complex which is then chromatographed through an anion exchanger at a weakly alkaline pH, which process steps (1) and (2), if both are utilized, can be carried out in either sequence. New S-adenosyl - 1 - methionine bisulfate and S-adenosyl - 1 - ethionine of exceptional stability are also provided.

3,707,537

4-CHLORO-4,6-DIENE-6-HALO OR LOWER ALKYL STEROIDS

Richard Wrightman Kierstead, North Caldwell, N.J., assignor to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Continuation-in-part of application Ser. No. 658,602, Aug. 7, 1967, which is a continuation-in-part of application Ser. No. 604,143, Dec. 23, 1966, which in turn is a continuation-in-part of application Ser. No. 529,200, Feb. 23, 1966, all now abandoned. This application Jan. 8, 1969, Ser. No. 789,929
Int. Cl. C07c *169/20, 160/34, 173/00*
U.S. Cl. 260—239.55 C 50 Claims

4-chloro-4,6-diene-6-halo- or lower alkyl-steroids are prepared via chlorination of corresponding compounds unsubstituted in the 4-position. After the chlorination compounds saturated at the 1- and 2-position can be unsaturated thereat and compounds containing a 3-oxo group can be converted to corresponding 3-hydroxy, 3-lower alkanoyloxy or 3-(1,2-alkylenedioxy) compounds. End-products of the invention are useful as either progestational agents, corticoid agents or androgenic/anabolic agents depending upon the particular derivative employed.

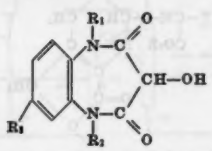
3,707,538

1,5,7-TRISUBSTITUTED-3-HYDROXY-1H-1,5-BENZODIAZEPINE-2,4-[3H,5H]-DIONES

Karl-Heinz Weber, Gau-Algesheim, Adolf Bauer, Ingelheim am Rhein, Peter Danneberg, Ockenheim, Klaus Minck, Gau-Algesheim, and Karl-Heinz Pook, Ingelheim am Rhein, Germany, assignors to Boehringer Ingelheim G.m.b.H., Ingelheim am Rhein, Germany

No Drawing. Continuation-in-part of application Ser. No. 193,181, Oct. 27, 1971. This application Jan. 26, 1972, Ser. No. 221,046
Claims priority, application Germany, Nov. 2, 1970, P 20 53 681.6; Jan. 27, 1971, P 21 03 745.6
Int. Cl. C07d *53/04*
U.S. Cl. 260—239.3 B 8 Claims

Compounds of the formula



wherein

R_1 is hydrogen, straight or branched alkyl of 1 to 4 carbon atoms, ω-hydroxy-(alkyl of 1 to 4 carbon atoms) or allyl,

R_2 is phenyl, halo-phenyl, trifluoromethyl-phenyl, nitrophenyl or pyridyl, and

R_3 is chlorine, bromine, fluorine, trifluoromethyl or nitro;

the compounds are useful as tranquilizers and anticonvulsives.

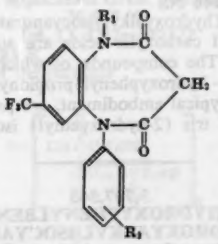
3,707,539

5-PHENYL-7-TRIFLUOROMETHYL-1H-1,5-BENZODIAZEPINE-2,4-DIONES

Karl-Heinz Weber, Gau-Algesheim, Karl Zeile, Peter Danneberg, and Rolf Giesemann, Ingelheim, and Karl Heinz Hauptmann, deceased, late of Ingelheim am Rhein, Germany, by Maria Hauptmann, heir, Bonn (Rhine), Germany; said Weber, Zeile, Danneberg, and said Giesemann assignors to Boehringer Ingelheim G.m.b.H., Ingelheim am Rhein, Germany

No Drawing. Continuation-in-part of application Ser. No. 89,482, Nov. 13, 1970, which is a continuation of abandoned application Ser. No. 703,188, Feb. 5, 1968. This application Feb. 1, 1971, Ser. No. 111,713
Claims priority, application Germany, Feb. 7, 1967, B 91,071; Jan. 18, 1968, B 96,281, B 96,282
Int. Cl. C07d *53/04*
U.S. Cl. 260—239.3 B 10 Claims

Compounds of the formula



wherein

R_1 is hydrogen, alkyl of 1 to 3 carbon atoms, hydroxy-alkyl of 2 to 3 carbon atoms, allyl or (cycloalkyl of 3 to 6 carbon atoms)-methyl, and

R_2 is hydrogen, halogen, trifluoromethyl or methoxy;

the compounds are useful as psychosedatives and anticonvulsives.

3,707,540

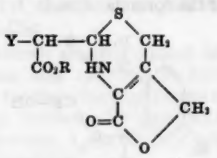
1,3-THIAZINES AND THEIR PREPARATION

Gaston Amiard, Thorigny, and Rene Heymes, Romainville, France, assignors to Roussel-UCLAF, Paris, France

No Drawing. Filed Dec. 7, 1966, Ser. No. 599,738
Claims priority, application France, Dec. 9, 1965, 41,613
Int. Cl. C07d *93/08, 99/24*
U.S. Cl. 260—243 R 7 Claims

Lactones of 2 - (carbonyl-amino-methyl)-5-hydroxymethyl-3,6-dihydro-2H-1,3-thiazine-4-carboxylic acids useful as intermediates for antibiotics of the C-cephalosporine family and their preparation.

The invention relates to novel dihydro-1,3-thiazine compounds of the formula



(I)

wherein R is selected from the group consisting of alkyl and aralkyl, Y is selected from the group consisting of —HN—Ac, phthalimido and —NH—R′, R′ is selected from the group consisting of hydrogen, alkyl and aralkyl and Ac is the acyl radical of an organic carboxylic acid of 1 to 18 carbon atoms and to a novel process for the preparation of the said compounds.

3,707,541

OXAZOLIDINE AND TETRAHYDROOXAZINE COMPOUNDS HAVING INSECT REPELLENT ACTIVITY

Thomas A. Lajiness, Racine, Wis., assignor to S. C. Johnson & Son, Inc., Racine, Wis.

No Drawing. Filed Mar. 16, 1970, Ser. No. 20,097
Int. Cl. C07d *87/06, 85/26*
U.S. Cl. 260—244 R 5 Claims

Oxazolidine and tetrahydrooxazine compounds bearing 3-alkanoyl substituents and alkyl, aryl and alkenyl substituents at the 2-position, are described. The compounds, as a class, have insect repellent activity.

3,707,542

DIALKYL-4-HYDROXYPHENYLCARBOXYLATES OF TRIS(HYDROXY-ALKYL) ISOCYANURATE

David H. Steinberg, Bronx, and Martin Dexter, Briarcliff Manor, N.Y., assignors to Ciba-Geigy Corporation, Greenburgh, N.Y.

No Drawing. Filed Feb. 25, 1971, Ser. No. 118,967
Int. Cl. C07d *55/38*
U.S. Cl. 260—248 NS 8 Claims

Esters of tris(hydroxyalkyl)isocyanurates with dialkyl-4-hydroxyphenyl carboxylic acids are stabilizers of organic material. The compounds, of which tris{2-[3-(3,5-di-tert.butyl - 4 - hydroxyphenyl)propionyloxy]-ethyl}isocyanurate is a typical embodiment, are prepared through esterification of tris (2-hydroxyethyl) isocyanurate.

3,707,543

DIBUTYL-4-HYDROXYPHENYLBENZOATES OF TRIS(HYDROXYALKYL)ISOCYANURATE

David H. Steinberg, Bronx, and Martin Dexter, Briarcliff Manor, N.Y., assignors to Ciba-Geigy Corporation, Greenburgh, N.Y.

No Drawing. Filed Feb. 25, 1971, Ser. No. 118,968
Int. Cl. C07d *55/38*
U.S. Cl. 260—248 NS 6 Claims

Esters of tris(hydroxyalkyl)isocyanurates with dibutyl-4-hydroxyphenyl benzoic acids are stabilizers of organic material. The compounds, of which tris[2-(3,5-di-tert.-butyl-4-hydroxybenzoyloxy)ethyl]-isocyanurate is a typical embodiment, are prepared through esterification of tris(2-hydroxyethyl)isocyanurate.

3,707,544

PRODUCTION OF CYANURIC CHLORIDE

Yelagondahally S. Suryanarayana and Luther J. Reid, Jr., Mobile, Ala., assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Filed May 11, 1971, Ser. No. 142,358
Int. Cl. C07d *55/42*
U.S. Cl. 260—248 C 3 Claims

An improvement is provided in a catalytic method for the production of cyanuric chloride from cyanogen chloride wherein the durability or life of the carbon catalyst is increased by mixing the active carbon catalyst with an intimate mixture of solid diluent, that is, an inert material or a catalyst with significantly less activity than the active carbon catalyst. Such a mixture when used in the vapor phase conversion of cyanogen chloride to cyanuric chloride has a much lower operating temperature with the result that the life of the active carbon catalyst is considerably increased.

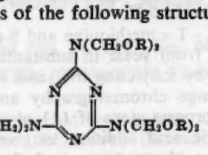
3,707,545

HEXAKIS(DIHALOALKOXYMETHYL) MELAMINES (TBAT)

Robert V. Berthold, South Charleston, and Rene M. J. Roberts, Charleston, W. Va., assignors to Union Carbide Corporation, New York, N.Y.

No Drawing. Filed Aug. 24, 1971, Ser. No. 174,498
Int. Cl. C07d *55/32*
U.S. Cl. 260—249.6 6 Claims

Novel compounds of the following structural formula:



wherein R has the formula $—CH_2C_aH_bX_c$ or

$$—CH_2C_6H_{5-d}X_d$$

wherein X is chloro or bromo; *a* is an integer from 1 to 8, *b* is an integer from 0 to 16; *c* is an integer from 1 to 8, and *d* is an integer from 1 to 5.

3,707,546

PROCESS FOR PREPARING DODECANEDINITRILE

David Arthur Klein, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Apr. 2, 1971, Ser. No. 130,545
Int. Cl. C07c *121/10*
U.S. Cl. 260—465.2 3 Claims

Dodecanedinitrile is prepared from dodecanedioic acid by catalyzed reaction with ammonia, using dodecanedinitrile as the reaction solvent.

3,707,547

MANUFACTURE OF ADIPONITRILE

Stephen Frederick Bush and Michael John Shires, Reading, and Frank Johnson and Richard Anthony Williams, Manchester, England, assignors to Imperial Chemical Industries Limited, London, England

Filed June 29, 1970, Ser. No. 50,610
Claims priority, application Great Britain, Aug. 6, 1969, 39,340/69
Int. Cl. C07c *121/10, 121/26*
U.S. Cl. 260—465.8 6 Claims

Vaporising a heat sensitive substance by passage through a heated duct while blowing a carrier gas along the axis so as to maintain annular flow of liquid until most of it

is vaporised and then continuing heat supply to complete the vaporisation. Particularly applicable to vaporisation of adipic acid into ammonia preliminary to adiponitrile manufacture.

3,707,548
9-HYDROXY-15-OXO-PROSTANOIC ACID
Jehan F. Bagli, Valois Gardens, Quebec, and Tibor Bogri, Montreal, Quebec, Canada, assignors to Ayerst, McKenna & Harrison, Limited, Ville St. Laurent, Quebec, Canada
No Drawing. Continuation-in-part of application Ser. No. 769,750, Oct. 22, 1968. This application July 28, 1969, Ser. No. 845,532
Int. Cl. C07c *61/36, 69/74*
U.S. Cl. 260—468 D **5 Claims**

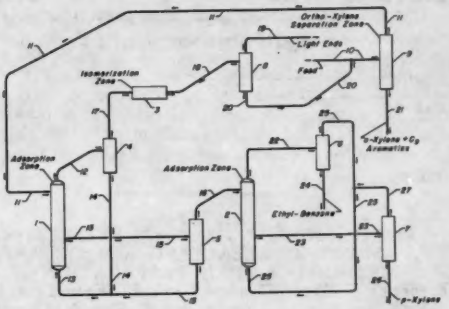
There are disclosed herein 9,15-dioxoprostanoic acid, 9-hydroxy-15-oxoprostanoic acid, 9,15-dihydroxyprostanoic and 9-oxo-15-hydroxy-prostanoic acid, lower alkyl esters thereof, and homologs thereof, as well as a process for preparing the above acids, lower alkyl esters thereof, and homologs thereof. The compounds possess hypotensive, antihypertensive, bronchospasmolytic and gastric acid secretion inhibiting properties, as well as inhibiting the aggregation of platelets and promoting the disaggregation of aggregated platelets. Methods for their use are also disclosed.

3,707,549
α-SUBSTITUTED HYDROCINNAMIC ACIDS AND DERIVATIVES THEREOF
Jack Mills, Indianapolis, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.
No Drawing. Continuation-in-part of application Ser. No. 516,708, Dec. 27, 1965. This application Dec. 5, 1967, Ser. No. 687,996
Int. Cl. C07c *149/40*
U.S. Cl. 260—470 **7 Claims**

Novel α-substituted hydrocinnamic acids and derivatives thereof useful to reduce serum cholesterol and triglyceride levels and to block blood-platelet clumping when administered to animals.

3,707,550
PROCESS FOR THE PRODUCTION AND RECOVERY OF ORTHO-XYLENE, PARA-XYLENE AND ETHYLBENZENE
Laurence O. Stine, Western Springs, and Donald B. Broughton, Evanston, Ill., assignors to Universal Oil Products Company, Des Plaines, Ill.
Continuation-in-part of application Ser. No. 874,919, Nov. 7, 1969, now Patent No. 3,636,121. This application Oct. 26, 1971, Ser. No. 191,976
Int. Cl. C07c *7/12, 15/08*
U.S. Cl. 260—674 SA **9 Claims**

A modified dual adsorption and isomerization process employing a combination of an ortho-xylene separation zone and a first adsorption zone in communication with a second adsorption zone and an isomerization zone. The process is suitable for the separation of various C_8 aromatic isomers into individual relatively pure streams containing the individual isomers. The ortho-xylene separation zone separates ortho-xylene from the other C_8 aromatic isomers contained in the fresh feed and recycle feed and passes the remaining C_8 aromatic isomers to a first adsorption zone. The first adsorption zone then separates para-xylene and ethylbenzene from meta-xylene and passes the para-xylene and ethylbenzene to a second adsorption zone wherein para-xylene and ethylbenzene are separated into relatively purified para-xylene and ethylbenzene streams. The remaining meta-xylene separated from the para-xylene in the first adsorption zone is passed into an isomerization zone to effect the production of additional C_8 aromatic isomers which are recycled to and sequentially separated by the ortho-xylene separation zone and the first and second adsorption zones, allowing increased yields of some of the C_8 aromatics based on fresh feed to the ortho-xylene zone. The modification basically comprises separating and removing ortho-xylene from



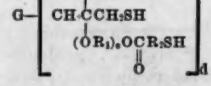
the feed to the isomerization zone thus allowing the production of additional ortho-xylene in said zone and thereby resulting in a higher overall yield of ortho-xylene based on fresh feed than that resulting if ortho-xylene were not separated and removed.

3,707,551
PHARMACEUTICALLY ACTIVE DERIVATIVES OF ETHANOOCTAHYDROPHENANTHRENE
Kyu Tai Lee and Joel G. Whitney, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.
No Drawing. Original application Mar. 4, 1968, Ser. No. 709,908. Divided and this application Feb. 11, 1971, Ser. No. 114,684
Int. Cl. C07c *47/52, 69/14, 103/20*
U.S. Cl. 260—479 R **6 Claims**

Novel disubstituted and polysubstituted 2,4′-ethanooctahydrophenanthrene- and 2,4′-ethanohexahydrophenanthrene-2-aldehydes, amides, and hydrazides are useful as antifertility agents when administered to animals.

3,707,552
ESTERS OF THIOGLYCOLLIC AND MERCAPTO PROPIONIC ACID
Bryan Dobinson, Duxford, and Bernard Peter Stark, Stapleford, England, assignors to Ciba-Geigy AG
No Drawing. Filed June 10, 1970. Ser. No. 45,246
Claims priority, application Great Britain, June 18, 1969, 30,957/69
Int. Cl. C07c *149/22*
U.S. Cl. 260—481 R **2 Claims**

A polythiol of the formula



I

wherein G represents a radical obtained by removal of *d* active hydrogen atoms from a compound having at least *d* active hydrogen atoms, R_1 represents an alkylene group containing two or more carbon atoms, R_2 represents a divalent organic residue, *e* is zero or a positive integer, and *d* is an integer of at least 1 which are intermediates for the preparation of curing agents useful as sealants, caulking agents and cable jointing agents.

3,707,553

TETRAMETHYLFORMAMIDINIUM ARENESULFONATES AND METHOD OF PREPARATION

George E. Bagley and Algirdas C. Poshkus, Lancaster, Pa., assignors to Armstrong Cork Company, Lancaster, Pa.

No Drawing. Filed Aug. 24, 1965, Ser. No. 482,284
Int. Cl. C07c *123/00*
U.S. Cl. 260—501.14 8 Claims

Quaternary amidinium salts of the general formula:

$$Ar\{SO_3^-\}^+CH[N(CH_3)_2]_2]_n$$

are readily synthesized by heating, at reflux, a mixture of dimethylformamide and an aromatic sulfonyl chloride. These compounds are useful as surface active agents, e.g. emulsifiers for waxes, emulsion stabilizers, aids in polymerization reactions, soiling inhibitors and foam stabilizers.

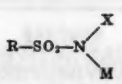
3,707,554

ALKALI METAL N-HALO-ALKANESULFONAMIDES AS BLEACHING AGENTS AND METHODS OF THEIR PREPARATION

Frederick E. Hardy, Headon, Newcastle-upon-Tyne, England, assignor to The Procter & Gamble Company, Cincinnati, Ohio

No Drawing. Filed Sept. 15, 1969, Ser. No. 858,165
Int. Cl. C07c *143/74*
U.S. Cl. 260—543 A 7 Claims

Novel alkali metal N-halo-alkanesulfonamides, having bleaching and antiseptic properties and capable of being formulated in bleaching and detergent compositions, are represented by the formula



wherein X is chlorine or bromine, M is an alkali metal, and R is an alkyl having from 1 to about 22 carbon atoms; the novel compounds can be prepared, for example, by reacting an alkane sulfonamide with an alkali metal hypochlorite or hypobromite.

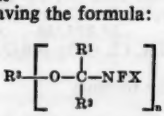
3,707,555

CERTAIN ORGANIC FLUOROAMINO COMPOUNDS

Charles D. Wright, White Bear Lake, and Joseph LaMar Zollinger, Woodbury Township, Washington County, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

No Drawing. Continuation-in-part of application Ser. No. 151,582, Nov. 10, 1961. This application Oct. 15, 1962, Ser. No. 232,327
Int. Cl. C07c *87/22, 87/34, 85/06*
U.S. Cl. 260—563 R 17 Claims

4. Compounds having the formula:



wherein R^1 and R^2 are each a member of the group consisting of fluorine and difluoramino, difluoramino-substituted perfluoroalkyl, difluoramino-substituted perfluoroalkylfluoramino, perfluoroalkyl, perfluoroalkylfluoramino, fluoramino-substituted perfluoroalkyl and fluorimino-substituted perfluoroalkylfluoramino radicals, said perfluoroalkyl moieties having from 1 to 5 carbon atoms, and when taken together with the carbon atom to which they are attached, R^1 and R^2 form a ring system having 6 atoms; *n* is an integral number from 1 to 6, X is a member of the group consisting of hydrogen, fluorine and chlorine and R^3 is a member of the group consisting of

(a) unsubstituted alkyl groups having from 1 to 18 carbon atoms and *n*-valencies,

(b) substituted alkyl groups having from 1 to 18 carbon atoms and *n*-valencies and substituted by not more than 3 of the group consisting of double bonds, triple bonds, nitro, carboxyl, carboalkoxy, alkoxycarbonyl, nitrato, nitrido, chloro, fluoro, difluoroamino, oxo and aldehydo groups,

(c) phenyl (lower alkyl),

(d) cycloalkyl groups having 4 to 6 carbon atoms in the ring and not more than 12 carbon atoms, and

(e) oxacycloalkyl groups having 2 to 5 carbon atoms in the ring and up to 7 carbon atoms.

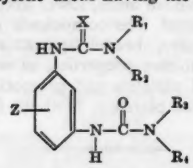
3,707,556

BIS-META-PHENYLENE UREAS

Eugene G. Teach, El Cerrito, Calif., assignor to Stauffer Chemical Company, New York, N.Y.

No Drawing. Filed Oct. 12, 1970, Ser. No. 80,120
Int. Cl. C07c *127/00*
U.S. Cl. 260—553 A 5 Claims

Bis-meta-phenylene ureas having the formula:



in which X represents oxygen or sulfur, R_1 represents lower alkyl or lower alkenyl, R_2 is hydrogen, R_3 represents alkyl, alkeryl, chloroacetyl, phenyl and chloro substituted phenyl, R_4 represents hydrogen, lower alkyl and furfuryl, and Z represents hydrogen or lower alkyl. The compounds of this invention are useful as herbicides.

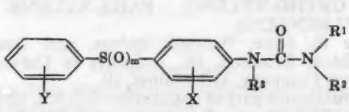
3,707,557

SULFONYL AND SULFINYL PHENYL UREAS

Melancthon Starr Brown, deceased, late of Berkeley, Calif. (by Gustave K. Kohn, administrator), assignor to Chevron Research Company, San Francisco, Calif.

Filed Nov. 9, 1970, Ser. No. 88,213
Int. Cl. C07c *127/18*
U.S. Cl. 260—553 A 7 Claims

Compound of the formula



wherein R^1 is hydrogen or alkyl of 1 to 4 carbon atoms, R^2 is alkyl of one to four carbon atoms, R^3 is hydrogen or alkyl of one to four carbon atoms, X and Y are hydrogen, halogen of atomic number nine to 35, alkyl of one to four carbon atoms or alkoxy of one to four carbon atoms and *m* is one or two. The compounds are herbicides.

3,707,558

N-PHENYLSULFONYLBORANECARBOXAMIDES AND NOBORONANECARBOXAMIDES

Hermann Bretschneider and Kraft Hohenlohe-Oehringen, Innsbruck, Austria, Andre Grussner, Basel, Switzerland, and Klaus zur Nedden, Marl, Germany, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

No Drawing. Filed Feb. 3, 1970, Ser. No. 8,390
Claims priority, application Switzerland, Feb. 14, 1969, 2,257/69; June 12, 1969, 8,969/69
Int. Cl. C07c *143/78*
U.S. Cl. 260—556 AC 19 Claims

Bicyclic carboxamide derivatives, prepared, inter alia, by reacting, for example, a camphor-3-carboxylic acid or

norcamphor-3-carboxylic acid derivative with a sulfonic acid amide, are described. The bicyclic carboxamide derivatives are useful as hypoglycemic agents.

3,707,559
N-ACYL PHENYLALANINE AMIDES

Robert H. Mazur, Deerfield, and David A. Jones, Jr., Skokie, Ill., assignors to G. D. Searle & Co., Chicago, Ill.

No Drawing. Filed May 14, 1971, Ser. No. 143,600
Int. Cl. C07c *103/30*
U.S. Cl. 260—558 A **8 Claims**

The above-captioned compounds are useful as pharmacological, e.g. anti-inflammatory, agents. They are manufactured by acylating phenylalanine to produce the N-acyl derivatives, then reacting the latter intermediates successively with an alkyl chloroformate and a primary amine to yield the desired N-acyl phenylalanine amides.

3,707,560
CERTAIN 4-AMINO-6-ARYL-PYRIMIDINES

Gerald George De Angelis, Wilton, and Hans-Jurgen Ernst Hess, Old Lyme, Conn., assignors to Pfizer Inc., New York, N.Y.

No Drawing. Filed Oct. 5, 1970, Ser. No. 78,216
Int. Cl. C07d *51/42*
U.S. Cl. 260—256.5 R **19 Claims**

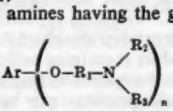
4-amino-6-arylpyrimidines and salts thereof, a novel class of inhibitors of platelet aggregation and bronchodilators in mammals.

3,707,561
POLYHALOGENATED AROMATIC AMINES

Lucien Sobel, Paris, Ludovic Parvi, Pont-de-Claix, and Arsene Isard, Grenoble, France, assignors to Ugine Kuhlmann, Paris, France

No Drawing. Filed Apr. 29, 1969, Ser. No. 820,310
Claims priority, application France, May 2, 1968, 150,251
Int. Cl. C07c *93/06*
U.S. Cl. 260—570.7 **4 Claims**

Polyhalogenated amines having the general formula:



in which n=1 to 4, Ar is a polyhalogenated aromatic radical, R_1 is an aliphatic or cycloaliphatic radical and R_2 and R_3 are hydrogen or an aliphatic, cycloaliphatic or heterocyclic alkyl radical or together may form a cycle or heterocycle. The amines are prepared by reacting a polyhalogenated aromatic compound with either an alcoholate of an amino alcohol or with the amino alcohol in the presence of an alkaline agent. Flame retardant epoxy resins are prepared by reacting the amines with polyepoxides or by reacting the amines with epichlorhydrin and thereafter curing the so obtained epoxides by usual hardeners.

3,707,562
10-AMINOALKYLENE-5H-DIBENZO[a,d] CYCLOHEPTENES

Walter Schindler and Hans Blattner, Riehen, near Basel, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

No Drawing. Continuation-in-part of application Ser. No. 571,193, Aug. 9, 1966. This application June 9, 1969, Ser. No. 831,719
Claims priority, application Switzerland, Aug. 12, 1965, 11,113/65; Aug. 19, 1965, 11,686/65
Int. Cl. C07c *87/28*
U.S. Cl. 260—570.8 TC **10 Claims**

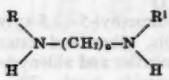
The compounds are of the class of substituted 10-amino-(lower)alkyl - 5H - dibenzo[a,d]cycloheptenes and the pharmaceutically acceptable acid addition salts thereof and have a depressant effect on the central nervous system; pharmaceutical compositions comprising these compounds and a pharmaceutical carrier and the method of producing a depressant effect on the central nervous system are provided; an illustrative embodiment is 8-methyl-10-dimethylaminomethyl - 5H - dibenzo[a,d]cycloheptene.

3,707,563
PROCESS FOR PREPARING N-ALKYLATED ALIPHATIC DIAMINES

Josef Pikl, Glassboro, N.J., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Filed Sept. 14, 1970, Ser. No. 72,202
Int. Cl. C07c *87/14*
U.S. Cl. 260—583 P **2 Claims**

A mixture of secondary and disecondary amines having the formula



where n equals 2 to 8, R equals a C_2 to C_6 saturated aliphatic hydrocarbon radical and R^1 equals R or H can be prepared in high yield by reacting aldehyde and diamine in an aqueous system in a molar ratio of from about 1.2:1.0 to about 1.9:1.0 at from 0° to 50° C. in the absence of hydrogen to form a diimine and then reducing the diimine in situ under hydrogen pressure with essentially complete utilization of the aldehyde and diamine.

3,707,564
CERTAIN ORGANIC COMPOUNDS CONTAINING BERYLLIUM AND BORON

Cliff Y. Fujikawa, Encino, Calif., assignor to North American Rockwell Corporation

No Drawing. Continuation-in-part of application Ser. No. 603,405, Dec. 16, 1966. This application July 8, 1968, Ser. No. 743,261
Int. Cl. C07f *5/02*
U.S. Cl. 260—606.5 B **8 Claims**

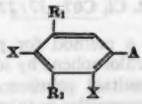
Liquid beryllium compounds, prepared by the reaction of tetraborane with enumerated classes of alkyl beryllium compounds, and useful as rocket fuels, are disclosed.

3,707,565
PHENOL SULFIDE DERIVATIVES

Kurt Hofer, Munchenstein, Basel-Land, Switzerland, assignor to Sandoz Ltd. (also known as Sandoz AG), Basel, Switzerland

No Drawing. Filed Aug. 20, 1969, Ser. No. 851,721
Claims priority, application Switzerland, Aug. 28, 1968, 12,899/68
Int. Cl. C07c *149/30*
U.S. Cl. 260—608 **8 Claims**

Novel phenols obtained by reacting a compound of the Formula I



(I)

in which

one X is selected from hydroxyl groups and the residues of esters of phosphoric acid and of phosphorous acid and the other X is selected from hydrogen atoms and tertiary butyl radicals,

each of R_1 and R_2 is independently selected from hydrogen atoms and tertiary butyl radicals,

A is selected from phenyl radicals and phenyl radicals substituted by up to 2 tertiary butyl radicals,

with the proviso that at least one of R_1 and R_2 must be a tertiary butyl radical and with the further proviso that at

most 3 tertiary butyl radicals may be present per molecule; with a condensing agent which is adapted to cause linking between phenol molecules (e.g. sulphur monochloride, sulphur dichloride, phosphorus trichloride or formaldehyde with or without an alkylene mercaptan) are described and their use as stabilizers against certain deterioration phenomena, especially adverse effect of light, heat or oxidation with organic materials, especially plastics such as polypropylene.

3,707,566
ARYLOXYPENTANE COMPOUNDS
Paul L. Creger and Winifred A. Neuklis, Ann Arbor, Mich., assignors to Parke, Davis & Company, Detroit, Mich.
No Drawing. Filed Mar. 30, 1970, Ser. No. 24,000
Int. Cl. C07c *43/20*
U.S. Cl. 260—613 D **3 Claims**

A series of 2,2-dimethyl-5-(2,5-xylyloxy)- and (3,5-xylyloxy)-1-pentanols, ether and ester derivatives, and structurally related nitriles and aldehydes. The compounds lower serum triglyceride levels. The 1-pentanol compounds can be produced by reducing the corresponding valeric acids or their salts or esters. The ether and ester derivatives can be produced by reacting the 1-pentanol compounds with an etherifying agent or esterifying agent. The nitriles can be produced by reacting a 3-aryloxypropyl halide with isobutyronitrile in the presence of a base. The aldehydes can be produced by reacting a substituted imine with a hydrolytic agent.

3,707,567
TELOMERS OF HYDROXYMETHYL NORBORNENE
Frank Wingler, Leverkusen, and Herbert Bartl, Odenthal-Hahnenberg, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany
No Drawing. Original application Mar. 11, 1970, Ser. No. 18,719. Divided and this application Sept. 22, 1971, Ser. No. 182,907
Claims priority, application Germany, Mar. 27, 1969, P 19 15 682.2
Int. Cl. C07c *29/00*; C08f *15/40*
U.S. Cl. 260—617 F **5 Claims**

Copolymers with a molecular weight of from 300 to 3,000, a chlorine content and/or bromine content of from 40 to 80% by weight and an OH number of from 20 to 200 and process of producing the same.

3,707,568
METHOD FOR PURIFYING CRUDE TRICHLOROPHENOL OR HEXACHLOROPHENE
Edwin B. Michaels, Gregory Court, East Norwalk, Conn. 06855, and John W. Lee, Glen Ave., Fairfield, Conn. 06430
No Drawing. Continuation-in-part of application Ser. No. 703,271, Feb. 6, 1968. This application June 9, 1971, Ser. No. 151,605
Int. Cl. C07c *37/22*
U.S. Cl. 260—619 A **3 Claims**

There is provided a method for purifying crude trichlorophenol or hexachlorophene by solubilizing the latter and ammoniating resultant solution to precipitate said salt complex leaving impurities in solution and, thereafter, decomposing the precipitate by heat.

3,707,569
ALKYLATION PROCESS
Bernardus J. van Sorge, Selkirk, N.Y., assignor to General Electric Company
No Drawing. Filed July 22, 1970, Ser. No. 57,354
Int. Cl. C07c *39/02, 39/12*
U.S. Cl. 260—621 R **10 Claims**

There is provided a process for selectively alkylating a phenolic compound in the ortho-position to the significant reduction of alkylation in the meta- and para-positions which comprises alkylating the phenolic compound with an alkanol in the presence of a tellurium-containing catalyst.

3,707,570
DIHALOGENATION OF ALKYLCYCLOHEXANES
Abraham Schneider, Overbrook Hills, Pa., assignor to Sun Oil Company, Philadelphia, Pa.
No Drawing. Continuation-in-part of application Ser. No. 702,789, Feb. 5, 1968. This application Dec. 9, 1969, Ser. No. 883,579
The portion of the term of the patent subsequent to Dec. 23, 1986, has been disclaimed
Int. Cl. C07c *17/10, 23/10*
U.S. Cl. 260—648 R **22 Claims**

Alkylcyclohexanes having one or more unbranched alkyl substituents of 1–3 carbon atoms each are dichlorinated or dibrominated by reacting the same under homogeneous conditions and at —30° C. to 20° C. with a C_4–C_5 tertiary alkyl chloride or bromide, using as catalyst dissolved $AlCl_3$ or $AlBr_3$, and then recovering a dichloro or dibromo alkylcyclohexane product in which the two halogen atoms are attached to the cyclohexane ring. The products have utility as intermediates for preparing difunctional derivatives, e.g. diacids, dialcohols or diamides, which are useful as monomers in polymer manufacture.

3,707,571
HALOGENATION OF POLYCYCLIC PERHYDROAROMATICS
Abraham Schneider, Overbrook Hills, Pa., assignor to Sun Oil Company, Philadelphia, Pa.
No Drawing. Continuation-in-part of application Ser. No. 702,789, Feb. 5, 1968. This application Dec. 19, 1969, Ser. No. 886,796
The portion of the term of the patent subsequent to Dec. 23, 1986, has been disclaimed
Int. Cl. C07c *17/10, 23/20*
U.S. Cl. 260—648 R **12 Claims**

Polycyclic perhydroaromatics having 3–11 rings at least two of which are fused are mono- and dihalogenated by reacting the same under homogeneous conditions and at —30° C. to 20° C. with a C_4–C_5 tertiary alkyl chloride or bromide, using as catalyst dissolved $AlCl_3$ or $AlBr_3$, and then recovering product containing both one and two chlorine or bromine atoms attached to ring carbon atoms. The monohalo and dihalo products can be used to alkylate benzene and yield polycyclic hydrocarbons of low aromaticity useful as traction fluid components or useful for further conversion to sulfonates suitable as detergent components of lubricating oil compositions.

3,707,572
DIHALOGENATION OF ALKYLDECAHYDRONAPHTHALENES
Abraham Schneider, Overbrook Hills, Pa., assignor to Sun Oil Company, Philadelphia, Pa.
No Drawing. Continuation-in-part of application Ser. No. 702,789, Feb. 5, 1968. This application Dec. 9, 1969, Ser. No. 886,797
The portion of the term of the patent subsequent to Dec. 23, 1986, has been disclaimed
Int. Cl. C07c *17/10, 23/36*
U.S. Cl. 260—648 R **16 Claims**

Alkyldecahydronaphthalenes having one or more unbranched alkyl substituents of 1–3 carbon atoms each are dichlorinated or dibrominated by reacting the same under homogeneous conditions and at —30° C. to 20° C. with a C_4–C_5 tertiary alkyl chloride or bromide, using as catalyst dissolved $AlCl_3$ or $AlBr_3$, and then recovering a dichloro or dibromo alkyldecahydronaphthalene product in which the two halogen atoms are attached to the nucleus. The products have utility as intermediates for preparing difunctional derivatives, e.g. diacids, dialcohols or diamides,

which are useful as monomers in polymer manufacture, or diesters which are useful as plasticizers in polyvinyl chloride.

3,707,573

DIHALOGENATION OF PERHYDROPOLYPHENYL HYDROCARBONS

Abraham Schneider, Overbrook Hills, Pa., assignor to Sun Oil Company, Philadelphia, Pa.

No Drawing. Continuation-in-part of application Ser. No. 702,789, Feb. 5, 1968. This application Dec. 22, 1969, Ser. No. 887,377

The portion of the term of the patent subsequent to Dec. 23, 1986, has been disclaimed

Int. Cl. C07c *17/10, 23/18*

U.S. Cl. 260—648 R **12 Claims**

Perhydropolyphenyl hydrocarbons having 2–6 rings and 0–3 alkyl substituents per ring containing up to 3 carbon atoms each are dichlorinated or dibrominated by reacting the same under homogeneous conditions and at −30° C. to 20° C. with a C_4–C_5 tertiary alkyl chloride or bromide, using as catalyst dissolved $AlCl_3$ or $AlBr_3$, and then recovering a dichloro or dibromo perhydropolyphenyl product in which the halogen atoms are attached to rings. The dihalo products have utility as intermediates for preparing difunctional derivatives, e.g. diacids, dialcohols or diamides, which are useful as monomers in polymer manufacture, or diesters which are useful as plasticizers in polyvinyl chloride. They also can be used to alkylate benzene and yield polycyclic hydrocarbons of low aromaticity useful as traction fluid components or useful for further conversion to sulfonates suitable as detergent components of lubricating oil compositions.

3,707,574

METHOD FOR THE CONTINUOUS PRODUCTION OF 1,1-DICHLORETHANE

Rudolf Stephan, Ranzel, and Hermann Richtzenhain, Cologne-Sulz, Germany, assignors to Dynamit Nobel Aktiengesellschaft

No Drawing. Continuation of application Ser. No. 617,459, Feb. 21, 1967. This application June 26, 1970, Ser. No. 56,066

Claims priority, application Germany, Feb. 24, 1966, D 49,427

Int. Cl. C07c *17/08*

U.S. Cl. 260—658 R **2 Claims**

A method for the continuous production of 1,1-dichlorethane by reacting vinyl chloride introduced in liquid form and dry hydrogen chloride in 1,1-dichlorethane as reaction medium in the presence of catalytic quantities of an anhydrous chloride of a trivalent metal is disclosed characterized in that the reaction is carried out in a vertical reaction zone at a temperature below about 50° C. The liquid vinyl chloride and dry hydrogen chloride are introduced at the lower end of the reaction zone. The catalyst is maintained in suspension in the lower portion of the reaction zone by regulating the rate at which the starting materials are introduced into the reaction zone. The 1,1-dichlorethane reaction product which is entirely free of suspended catalyst is removed at the top of the reaction zone.

3,707,575

PROCESS FOR SEPARATING C_5 HYDROCARBONS BY SOLVENT EXTRACTION AND EXTRACTIVE DISTILLATION

Eckart Muller, Bergen Enkheim, Karl Heinz Eisenlohr, Buchschlag, and Helmut Klein, Hanau, Germany, assignors to Metallgesellschaft Aktiengesellschaft

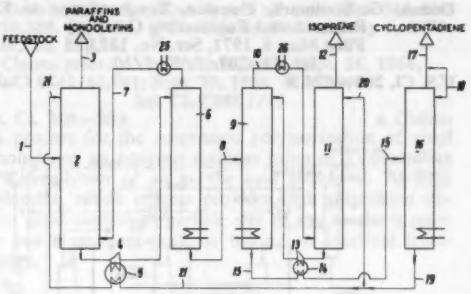
Filed Aug. 11, 1970, Ser. No. 63,151

Claims priority, application Germany, Aug. 13, 1969, P 19 41 197.3

Int. Cl. C07c *7/00*

U.S. Cl. 260—666 A **14 Claims**

A C_5 hydrocarbon mixture is separated by removing monoolefins and paraffins from the mixture by solvent extraction followed by extractive distillation. The bottoms product (distilland) from the distillation step is then extractively distilled a second time and a mixture of isoprene and co-distilled cyclopentadiene is obtained as the



distillate which is subject to a second solvent extraction to remove the cyclopentadiene. The bottoms product from the second distillation step is further distilled to recover cyclopentadiene as the distillate and solvent which is recycled to the first and second solvent extraction steps.

3,707,576

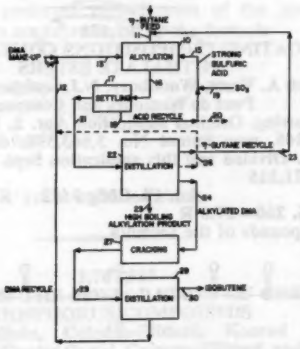
PREPARATION OF ALIPHATIC OLEFINS FROM SATURATED HYDROCARBONS

Robert E. Moore, Wilmington, Del., assignor to Sun Research and Development Co., Philadelphia, Pa.

Continuation-in-part of applications Ser. No. 80,779, Oct. 14, 1970, and Ser. No. 91,183, Nov. 19, 1970. This application May 26, 1971, Ser. No. 147,011

Int. Cl. C07c *3/54, 13/28*

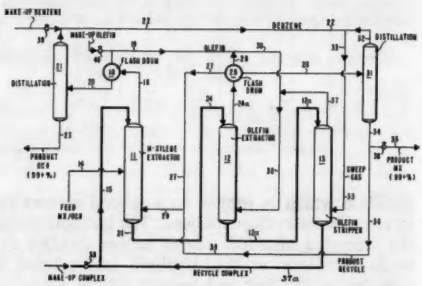
U.S. Cl. 260—666 A **16 Claims**



A process for converting saturated hydrocarbons to aliphatic or alicyclic olefins having the same number of carbon atoms as the feed is described. The feed can be C_4–C_{10} n-paraffins, certain C_4–C_{10} isoparaffins, cyclohexane or methyl-substituted cyclohexanes of the C_7–C_{10} range. The olefin product from n-paraffin feed is singly branched olefin. The process involves reacting the saturated hydrocarbon with a C_{10}–C_{13} adamantane hydrocarbon in the presence of strong sulfuric acid to form a higher alkylated adamantane, followed by cracking of the latter to yield the olefin and re-form the C_{10}–C_{13} adamantane hydrocarbon. The latter can be recycled. The procedure is also applicable to the recovery of olefins from

spent sulfuric acid previously used in the treatment of olefinic stocks, e.g. in an olefin-isoparaffin alkylation process.

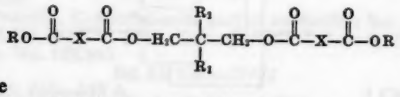
3,707,577
SEPARATION OF AROMATICS
Donald G. Stenmark, Houston, Tex., assignor to Esso Research and Engineering Company
Filed Mar. 8, 1971, Ser. No. 122,073
Int. Cl. C07c 7/02, 7/10
U.S. Cl. 260—674 A **20 Claims**



A selected aromatic hydrocarbon is separated from its mixtures with other aromatic hydrocarbons by forming a lithium-aluminum chloride complex with an unsaturated compound which is used to extract a mixture of aromatic hydrocarbons to form a raffinate phase and an extract complex phase; the phases are separated and the extract complex phase is washed with a portion of the compound and there is recovered from the washed extract complex phase a second extract phase lean in said compound and a second raffinate phase comprising said compound and a selected aromatic hydrocarbon which is then recovered from the second raffinate phase.

3,707,578
COATING COMPOSITIONS CONTAINING PHTHALATE ESTERS
Joseph A. Vasta, Woodbury, N.J., assignor to E. I. du Pont de Nemours and Company
No Drawing. Original application Apr. 2, 1968, Ser. No. 718,246, now Patent No. 3,663,598, dated May 16, 1972. Divided and this application Sept. 10, 1970, Ser. No. 71,215
Int. Cl. C08g 9/32
U.S. Cl. 260—67.6 R **8 Claims**

Compounds of the formula



where

R is an alkyl group or a cyclohexyl group,

R_1 is hydrogen or an alkyl group,

R_2 is —OH or —CH_2OH, and

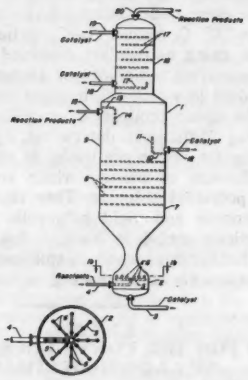
X is the residue from phthalic acid, maleic acid, or succinic acid,

and coating compositions containing these compounds.

3,707,579
OLEFIN DISPROPORTIONATION PROCESS
Dean P. Montgomery, Bartlesville, Okla., assignor to Phillips Petroleum Company
No Drawing. Filed Dec. 28, 1970, Ser. No. 102,107
Int. Cl. C07c 3/62
U.S. Cl. 260—683 D **5 Claims**

The process of disproportionating olefin hydrocarbons is improved by contacting the feed olefin hydrocarbons with a bed of activated and CO treated magnesium oxide at a temperature below which any significant isomerization activity is encountered prior to contacting the feed with the olefin disproportionation catalyst.

3,707,580
HYDROGEN FLUORIDE ALKYLATION WITH APPARATUS HAVING A VENTURI-SHAPED CHAMBER
Robert F. Anderson, La Grange Park, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill.
Filed June 3, 1971, Ser. No. 149,593
Int. Cl. C07c 3/54
U.S. Cl. 260—683.48 **11 Claims**



An alkylatable reactant is alkylated with an olefin-acting reactant, utilizing a fluid catalyst, by passing the reactants and catalyst through a venturi-shaped zone and a retention zone into a separation zone. A catalyst phase and a reaction products phase are separated and the catalyst phase is withdrawn. A first portion of the reaction products phase is withdrawn and a second portion is passed through a refluxing zone. The portion of reaction products phase withdrawn from the separation zone is recycled to the venturi-shaped zone. Catalyst is introduced into the downstream end of the refluxing zone and passed counter-currently to the second portion of reaction products. The second portion of the reaction products is withdrawn and the product of the process is recovered from it. Also disclosed is a novel unitary alkylation apparatus comprising, in combination, a venturi-shaped chamber, a retention chamber, a settling chamber and a refluxing chamber.

3,707,581
OLEFIN CONVERSION PROCESS USING CATALYST CONTAINING A METAL PHOSPHATE SUPPORT
Louis F. Heckelsberg, Bartlesville, Okla., assignor to Phillips Petroleum Company
No Drawing. Continuation of abandoned application Ser. No. 846,977, Aug. 1, 1969, which is a continuation-in-part of abandoned application Ser. No. 627,632, Apr. 3, 1967. This application Dec. 30, 1970, Ser. No. 102,883
Int. Cl. C07c 3/62, 11/02, 13/02
U.S. Cl. 260—683 D **10 Claims**

Olefins are converted into other olefins having different numbers of carbon atoms by contact with a catalyst active for disproportionating propylene into ethylene and butene and comprising a phosphate of aluminum, zirconium,

calcium, magnesium or titanium and promoted by one or more selected compounds of tungsten, molybdenum, or rhenium.

3,707,582
PHOSPHORUS COMPOUND PROMOTED OLIGOMERIZATION OF ISOBUTENE

Gary L. Driscoll, Boothwyn, Pa., assignor to Sun Research and Development Co., Philadelphia, Pa.

No Drawing. Continuation-in-part of abandoned application Ser. No. 53,268, July 6, 1970. This application June 7, 1971, Ser. No. 150,740
Int. Cl. C07c *3/18*
U.S. Cl. 260—683.15 B 9 Claims

A promoted polymerization of isobutene to form a polyisobutene oil having a viscosity index of from 95 to 130, using phosphorus trichloride or phosphorus oxychloride as the promoter, stannic chloride as the catalyst, and nitromethane as the solvent at from −30° C. to 100° C. and preferably from 0° C. to 50° C. The stannic chloride is present in from 0.1 to 40 and preferably 1 to 20 volume percent as based on nitromethane and phosphorus compound is present in a volume ratio of from 0.1:1 to 5:1 phosphorus compound:stannic chloride.

3,707,583
ADHESIVE

Alan G. McKown, St. Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Continuation-in-part of application Ser. No. 768,675, Oct. 18, 1968, now Patent No. 3,655,818. This application June 4, 1971, Ser. No. 150,026
The portion of the term of the patent subsequent to Apr. 11, 1989, has been disclaimed
Int. Cl. C08g *45/04*
U.S. Cl. 260—837 14 Claims

A curable structural adhesive in flowable, particulate form comprising an epoxy resin in combination with a reaction product of a carboxylated nitrile rubber and an epoxy resin and an epoxy curing system which preferably will provide a cure at a temperature not exceeding about 250° F. Upon subjection to about 150° F., the adhesive converts to a state in which it will readily adhere to various substrates including metals. Also provided is a process for applying the adhesive to a substrate.

3,707,584
PROCESS FOR PRODUCING WATER-DILUTABLE HEAT-HARDENABLE CROSS-LINKING CO-POLYMERS

Laszlo Tulacs, Hitzendorf, near Graz, Austria, assignor to Vianova Kunstharz Aktiengesellschaft, Johannesgasse, Austria

No Drawing. Filed July 17, 1970, Ser. No. 56,003
Claims priority, application Austria, July 29, 1969, A 7.288/69
Int. Cl. C08g *37/32*
U.S. Cl. 260—851 6 Claims

A process for producing upon neutralization water-soluble cross-linking co-polymers is described characterized in that from 5 to 40 percent by weight of a water-soluble or water-insoluble partially or completely etherified aminoplast resin, 5 to 30 percent by weight of an alpha-beta ethylenically unsaturated carboxylic acid or its functional derivative carrying at least one free carboxyl group, and 30 to 90 percent by weight of other co-polymerizable compounds carrying no free carboxyl groups are blended and thereafter reacted to form a homogeneous resinous composition. The composition obtained has improved gloss, adhesion, and flexibility and is particularly suitable for electrodeposition.

3,707,585
SUSPENSION POLYMERIZATION OF VINYL MONOMERS

Takehiko Okamoto, Shirasawa, and Masakazu Inoue, Akihiko Kishimoto, and Tadahiro Sueyoshi, Nagoya, Japan, assignors to Toray Industries, Inc., Chuo-ku, Tokyo, Japan

No Drawing. Continuation-in-part of application Ser. No. 670,380, Sept. 25, 1967. This application May 6, 1970, Ser. No. 35,284
Claims priority, application Japan, Sept. 26, 1966, 41/62,981; Sept. 29, 1966, 41/63,907
Int. Cl. C08f *1/11*
U.S. Cl. 260—883 4 Claims

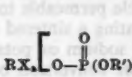
A process for the suspension polymerization of vinyl monomers in an aqueous medium using as a suspending aid a copolymer of an acrylic acid ester with 70–90% acrylamide, which process provides high suspension stability, good control of particle size of the resultant polymer and a resultant polymer having an excellent transparency.

3,707,586
HALOGENATED PHOSPHATE POLYESTERS

Richard J. Turley, Orange, Conn., assignor to Olin Corporation

No Drawing. Filed Feb. 2, 1970, Ser. No. 8,040
Int. Cl. C07f *9/08, 9/12*
U.S. Cl. 260—928 11 Claims

Halogenated phosphate polyesters, useful as flame retardants for polyurethane foam, are disclosed which have the formula



wherein

R is an aliphatic hydrocarbon radical of 1–8 carbons or an aromatic hydrocarbon radical,

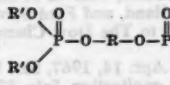
X is a halogen,

a is an integer of 0–4,

n is an integer of 2–6, and

each R′ is independently a haloalkyl radical.

According to preferred embodiments of the invention, these polyesters are represented by the formula



wherein R and R′ are as indicated above.

3,707,587
PROCESS FOR THE PREPARATION OF ORGANIC PHOSPHORUS COMPOUNDS

Reinhard Schliebs, Cologne-Flittard, Konrad Uhlig, Leverkusen, Gunter Oertel, Cologne-Flittard, and Hans-Joachim Diehr, Leverkusen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany

No Drawing. Filed Mar. 16, 1971, Ser. No. 124,932
Claims priority, application Germany, Apr. 14, 1970, P 20 17 812.5
Int. Cl. C07f *9/40*
U.S. Cl. 260—970 5 Claims

The invention relates to an improved process for the preparation of organic phosphorus compounds having free hydroxy groups and which are useful for the production of flame resistant polyurethane resins. Production of organic phosphorus compounds by reacting spirocyclic compounds with carbonyl compounds and alkanolamines and the utility thereof in the production of flame-resistant polyurethane resins.

3,707,588
PROCESS FOR START-UP OF FIBER SPINNING SOLUTIONS

Kenneth C. Campbell, Rock Hill, S.C., Donald E. Robinson and R. Russell Rhinehart, Charlotte, N.C., and Wade J. Truesdale, Rock Hill, S.C., assignors to Celanese Corporation, New York, N.Y.

No Drawing. Filed Dec. 28, 1970, Ser. No. 102,196
Int. Cl. B28b 7/04
U.S. Cl. 264—39 7 Claims

A method for the start-up of a fiber-forming acrylonitrile polymer solution spinning operation wherein during spinning the spinning solution is maintained under superatmospheric pressure and at a temperature above the atmospheric boiling point of the solvent comprising prefilling the spinneret with a high boiling solvent in an amount sufficient to maintain the spinneret filter substantially saturated with solvent during the start-up until spinning solution flow commences.

3,707,589
REHEATING A BETA-ALUMINA ARTICLE IN AN ALKALI METAL ATMOSPHERE TO IMPROVE ITS PERMEABILITY

Takewo Chiku, Toyota, and Kiyoshi Ninomiya and Hiroaki Hayashi, Nagoya, Japan, assignors to Kabushiki Kaisha Toyota Chuo Kenkyusho, Aichi-ken, Japan

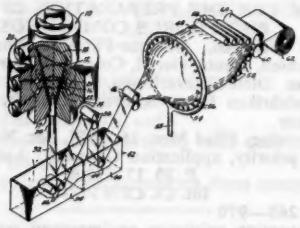
Filed Apr. 13, 1971, Ser. No. 133,551
Int. Cl. C04b 35/10, 35/64, 41/02
U.S. Cl. 264—82 11 Claims

A beta-alumina article permeable to sodium and potassium ions made by heating a sintered alpha-alumina article in the presence of sodium or potassium suffers from a lack of uniformity of conversion of alpha-alumina to beta-alumina, particularly in the center portion of the article. The uniformity is greatly improved by reheating this article at similar temperatures used in the first heating step in an atmosphere having a lower concentration of sodium or potassium than used in the first heating step. Following this second heating step the article is washed in water.

3,707,590
ORIENTED SARAN COEXTRUDATE

Glenn C. Wiggins, Midland, Marvin J. Kreh, Essexville, Robert S. Davis, Midland, and Fred Stevenson, Beaverton, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Original application Apr. 14, 1967, Ser. No. 630,889. Divided and this application July 27, 1970, Ser. No. 64,880
Int. Cl. B29f 3/08
U.S. Cl. 264—95 4 Claims

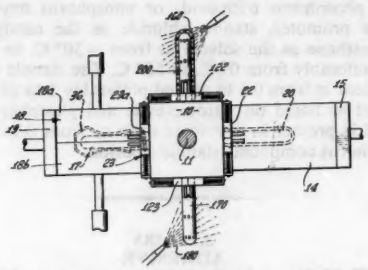


An oriented two-layered laminate of vinylidene chloride-vinyl chloride copolymer as one layer and an ethylene-unsaturated ester type copolymer as the other layer. To this laminate may be adhered another polymer, also capable of being oriented, plastic sheet, paper sheet or board, metal or metal foil. Products such as pouches, chubs, formed troughs and the like can be made therefrom because the vinylidene chloride-vinyl chloride copolymer retains its orientation.

3,707,591
HIGH SPEED MOLDING OF HOLLOW PLASTIC ARTICLES

George A. Chalfant, Ontario, Calif., assignor to Trans Container Corporation, Los Angeles, Calif.

Continuation of abandoned application Ser. No. 885,076, Dec. 15, 1969. This application July 2, 1971, Ser. No. 159,487
Int. Cl. B29c 17/07, 25/00
U.S. Cl. 264—97 5 Claims

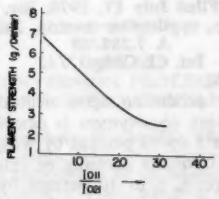


A plastic parison with neck and body portions is formed over a blow nozzle and within neck and body molds at a forming station. The parison and nozzle are transferred to a region outside the body forming mold and the hot body portion is cooled while the parison neck portion remains in a neck mold. Gas is next blown at a blow station and via the nozzle into the partially cooled parsion body portion for effecting its expansion into container body shape within a blow mold, and the neck mold is then opened and the blown container is separated from the nozzle, as for example by the blow mold.

3,707,592
PROCESSES FOR SUSPENSION-POLYMERIZING VINYLIDENE FLUORIDE AND ORIENTING THE MELT EXTRUDED POLYMER

Hajime Ishii, Nobuo Bannai, and Sadao Nishita, Iwakishi, Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha

Continuation-in-part of abandoned application Ser. No. 501,888, Oct. 22, 1965. This application Jan. 15, 1970, Ser. No. 3,204
Int. Cl. C08f 3/22; D01d 5/12
U.S. Cl. 264—210 R 2 Claims



Vinylidene fluoride polymers having a crystallization temperature above 135° C. and a melting temperature above 175° C. Articles such as fibers, films, etc., made from such polymers, have excellent heat-resistant properties and high mechanical strength. The aforementioned polymers may be produced by suspension polymerizing

polyvinylidene fluoride in a water medium at a temperature preferably between 0° C. and 30° C. in the presence of a catalyst which may be a dialkyl peroxy dicarbonate or a dialkyl peroxy carbonate.

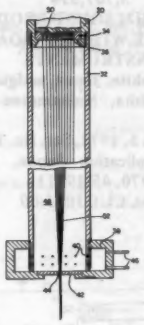
3,707,593

APPARATUS AND METHOD FOR MANUFACTURING CONTINUOUS FILAMENTS FROM SYNTHETIC POLYMERS

Shunsuke Fukada, Kyoto, and Toru Nakanishi, Ehimeken, Japan, assignors to Toray Industries, Inc., Tokyo, Japan

Filed Apr. 2, 1970, Ser. No. 25,149
Int. Cl. B28b *3/20*; D01d *5/12*
U.S. Cl. 264—210 F 13 Claims

An apparatus and method are provided for manufacturing continuous synthetic polymer filaments which are especially useful in the preparation of non-woven products. The apparatus of this invention is comprised of an elongated closed cylinder which has a spinneret assembly at an upper end thereof, an exit nozzle at a lower end thereof and means for introducing a compressed fluid into the interior of the cylinder so as to form a pressurized chamber within the cylinder. In the method of this invention, the polymer is spun into filaments by the spinneret assembly. The spun filaments are then cooled and solidified by the compressed fluid in the chamber. The solidified filaments then exit through the exit nozzle along with a portion of the compressed fluid which causes the filaments to be drawn so as to improve their physical properties.

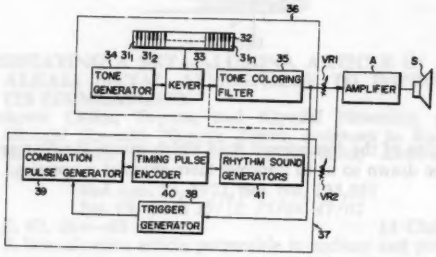


ELECTRICAL

3,707,594
AUTOMATIC RHYTHM SOUND PRODUCING DEVICE ADAPTED FOR USE WITH KEYBOARD MUSICAL INSTRUMENTS

Kiyoshi Ichikawa, Hamakita, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatou-shi, Shizuoka-ken, Japan

Filed March 5, 1971, Ser. No. 121,387
Claims priority, application Japan, March 10, 1970, 45/22708; March 10, 1970, 45/19911
Int. Cl. G10f *1/00*
U.S. Cl. 84—1.03 **7 Claims**

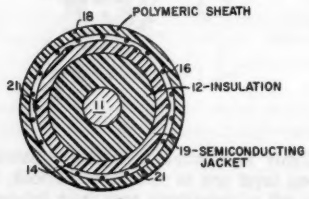


An automatic rhythm sound producing device built in a keyboard musical instrument capable of playing ordinary tones of the melody, chord or bass, or combinations thereof upon selective depression of a plurality of keys arranged in the order of musical notes. The device includes a combination pulse generator which comprises a clock pulse generator followed by a frequency dividing counter chain to generate combination pulses, and having a resetting arrangement. The outputs from the combination pulse generator are supplied to a timing pulse encoder so as to cause outputs of the various stages of the counter chain to appear on the output lines of the encoder as a train of selected timing pulses which represent desired rhythm patterns. The outputs from the encoder are supplied to individual rhythm sound generators to produce rhythm sounds according to the selected rhythm patterns for an automatic rhythm performance. A trigger generator is provided to detect a depression of a key and upon detection to start the normally reset counter chain, thereby initiating the automatic rhythm performance.

3,707,595
SHIELDED CABLE

Walter J. Plate, Rye, N.Y., assignor to Anaconda Wire and Cable Company

Filed May 20, 1971, Ser. No. 145,356
Int. Cl. H01b *9/02*
U.S. Cl. 174—115 **8 Claims**

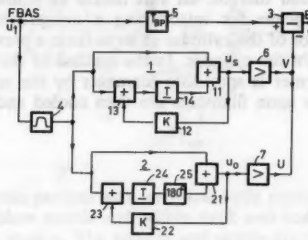


In an electric power cable a neutral conductor comprising a plurality of separated wires is applied helically over an electrically conducting cable jacket in which longitudinal wires are embedded. The longitudinal wires serve to distribute any heavy fault currents among all the overlaid helical wires.

3,707,596
CIRCUIT ARRANGEMENT FOR SURPRESSING THE CHROMINANCE SUBCARRIER IN PAL SIGNAL

Klaus Kuhn, Kalenbarg, Germany, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Dec. 14, 1970, Ser. No. 97,657
Claims priority, application Germany, Dec. 19, 1969, P 19 63 819.8
Int. Cl. H04n *9/02*
U.S. Cl. 178—5.4 P **5 Claims**

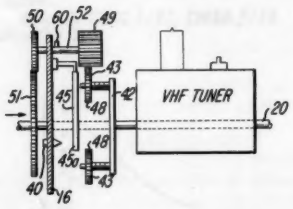


A circuit for eliminating the color component of a composite television signal has two comb filters. Both filters have internal feedback and one uses subtraction, while the other uses addition. This prevents a loss of vertical definition in the picture.

3,707,597
VIDEO BLANKING AND AUDIO MUTING CIRCUIT

Lawrence Mark Lunn, Indianapolis, Ind., assignor to RCA Corporation

Filed March 8, 1971, Ser. No. 121,999
Int. Cl. H04n *5/44*
U.S. Cl. 178—5.8 R **8 Claims**



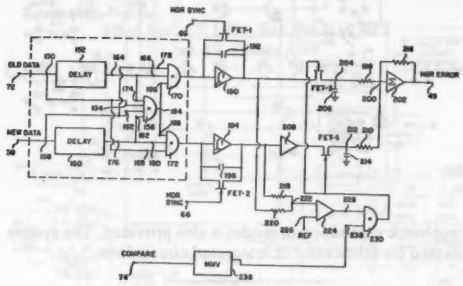
The described switching circuit blanks the picture and mutes the sound of a television receiver during its channel selection tuning, either manually or automatically by remote control. The picture blanking function is accomplished by operating on the brightness limiter circuit of the receiver to decrease the brightness control bias coupled to the video signal chain, while the sound muting function is accomplished by operating on a current splitter to attenuate the signal drive coupled to the receiver's audio output circuit.

3,707,598

ELECTRONIC PATTERN RECOGNITION

Joe M. Scarbrough, Orlando, Fla., assignor to Martin Marietta Corporation, New York, N.Y.

Filed July 2, 1969, Ser. No. 838,490
Int. Cl. H04n 7/18
U.S. Cl. 178—6.8 17 Claims



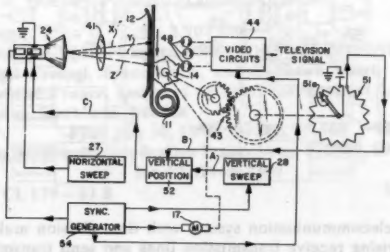
Method and apparatus for electronic recognition of patterns as particularly adapted to the pattern tracking of the electronic signature of an object within the field of view of a television camera.

3,707,599

APPARATUS FOR SCANNING CONTINUOUSLY MOVING FILM FOR COLOR TELEVISION

Morris E. Brown, Fairport, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Continuation of Ser. No. 33,401, April 30, 1970. This application Dec. 27, 1971, Ser. No. 212,720
Int. Cl. H04n 5/38
U.S. Cl. 178—7.2 10 Claims



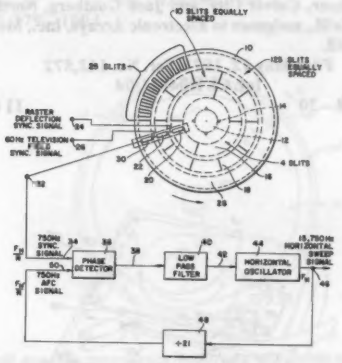
A system for scanning a continuously moving information bearing strip includes means for varying the position of a scanning raster synchronously with and in the direction of the film movement. When the film motion is stopped for single frame viewing, the position of the scanning raster is also stopped and a full scan of the frame then in position is effected without reframing. According to one embodiment, the position of the scanning raster is varied under control of a rotating potentiometer and, according to a second embodiment, by a ring counter. In a third embodiment, the positioning of the scanning raster is controlled by a member having a variable transmission of radiation and coupled to the movement of the information bearing strip, and a device sensitive to radiation directed through the member.

3,707,600

DISC CONTROLLED INTERLACED SCANNING RASTER

Carl N. Schauffele, and Lenard M. Metzger, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jan. 18, 1971, Ser. No. 107,200
Int. Cl. H04n 5/38
U.S. Cl. 178—7.2 5 Claims



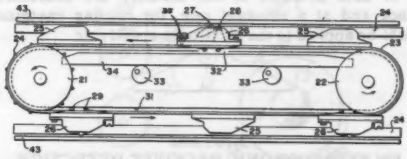
Apparatus for scanning the frames of a continuously moving information bearing medium in a television field pattern including a plurality of spaced horizontal lines controlled by a horizontal sweep signal having a predetermined horizontal sweep frequency. A predetermined sweep frequency of the horizontal sweep signal is produced by a horizontal oscillator whose frequency is varied by a control signal produced by a phase detector. A feedback circuit interconnects the output of the horizontal oscillator and one input terminal of a phase detector. The other input terminal of the phase detector is adapted to receive a sync signal having a frequency equal to an integral submultiple of the predetermined horizontal sweep frequency. The phase detector responds to the horizontal sweep signal and the detected sync signal to produce the control signal, the magnitude of which is dependent upon the phase difference therebetween.

3,707,601

FACSIMILE TRANSCEIVER

Ralph W. Goble, Boulder, Colo., assignor to Phonecopy, Inc., Wilmington, Del.

Filed July 24, 1970, Ser. No. 58,053
Int. Cl. H04n 3/04
U.S. Cl. 178—7.6 10 Claims



A flat-bed scanner for facsimile transceivers permits an original document to be inserted for scan reading and the sheet materials necessary for scan print-out to be operatively engaged respectively by the scanning read heads or writing stylii by mounting these scanning elements on an endless belt driven on two spaced pulleys. The original document is read by the read heads as they move in one direction between the pulleys and the print-out occurs on the opposite side of the pulley assembly as the writing stylii are transported by the belt

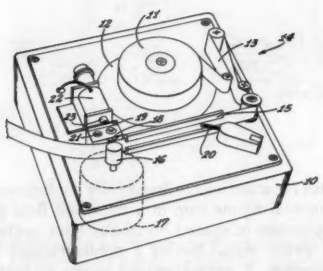
on its return run. By establishing "diametric symmetry" simplified phase synchronization of two units is obtained independent of the direction of transmission.

3,707,602

STRIP PRINTER

Peter S. Glaser, Culver City, and Jack Goldberg, Northridge, both of Calif., assignors to Electronic Arrays, Inc., Mountain View, Calif.

Filed May 12, 1971, Ser. No. 142,572
Int. Cl. H04l *21/04*
U.S. Cl. 178—30 **11 Claims**



A strip printer wherein an electrosensitive strip is reeled past plural, vertically aligned electrodes by means of a capstan-pinch roller combination, the capstan being driven by a constant speed motor on a continuous basis. A solenoid is coupled to the pinch roller for selective actuation causing the pinch roller to engage the strip for gripping the strip by the pinch roller and the capstan. A read only memory has character input, column addressing input and data output lines for providing sequentially data groups in the data output lines in response to signals at the character input and in further response to sequential column addressing input signals, provided by an addressing counter. The data lines are connected to the electrodes for control of electric energization thereof in response to output signals on the data lines. A constant frequency oscillator provides oscillations to the counter at a particular phase in relation to an enabling input signal, derived from a print command input, and sustained for the duration of solenoid energization so that a particular plurality of data columns in the memory are addressed in sequence and at a constant rate, for causing energization signals to be applied to the electrodes at said rate.

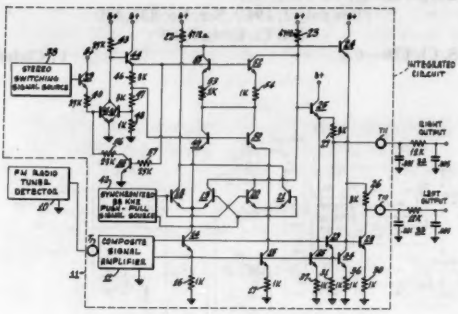
3,707,603

FM STEREOPHONIC RECEIVER DETECTION APPARATUS AND DISABLING MEANS

Allen LeRoy Limberg, Somerville, N.J., assignor to RCA Corporation

Filed Dec. 29, 1969, Ser. No. 888,390
Int. Cl. H04h *5/00*
U.S. Cl. 179—15 BT **18 Claims**

A detector for deriving stereophonic audio difference (L−R) signal from a stereophonic composite signal and matrix amplifier means coupled to the detector for combining the difference signals with audio sum (L+R) signals to produce left (L) and right (R) audio signals. Automatic switching means for transferring the system between monophonic and



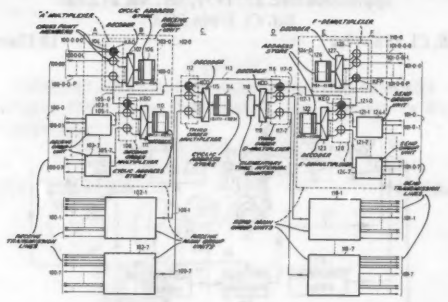
stereophonic reproduction modes is also provided. The system is adapted for fabrication in integrated circuit form.

3,707,604

TELECOMMUNICATION SYSTEM WITH TIME DIVISION MULTIPLEX

Johannes Anton Greefkes; Oscar Bernardus Philomenus Rikkert de Koe, and Adrianus Wilhelmus Maria van den Enden, all of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed June 22, 1971, Ser. No. 155,571
Claims priority, application Netherlands, June 24, 1970, 7009245
Int. Cl. H04j *3/04*
U.S. Cl. 179—15 A **5 Claims**



A telecommunication system with time division multiplex comprising receive transmission lines and send transmission lines and a clock for generating a time scale which is divided into mutually equal frame time intervals, each of which is divided into *k* mutually equal main time intervals, each of which is divided into *m* mutually equal sub-time intervals, the transmission lines being divided into groups, and the groups being divided into main groups, each group of receive transmission line being connected to an adjustable first-order multiplexer, the first-order multiplexers of a main group being connected to an adjustable second-order multiplexer, each group of send transmission lines being connected to an adjustable first-order demultiplexer, the first-order demultiplexers of a main group being connected to an adjustable second-order demultiplexer, a switching network being provided for connecting the second-order multiplexers to the second-order demultiplexers. In a preferred embodiment the steepness of the edges and the pulse widths are adapted to the locally prevailing signal pulse frequency.

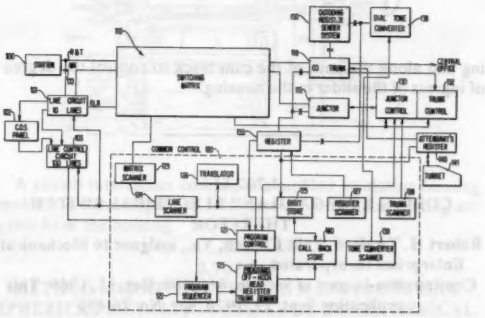
ERRATUM

For Class 179—18 see:
Patent No. 3,707,140

3,707,605
AUTOMATIC CALL-BACK INCLUDING SIMPLIFIED STORAGE AND SCANNING

Ernest O. Lee, Jr., and John A. Adams, Jr., both of Fairport, N.Y., assignors to Stromberg-Carlson Corporation, Rochester, N.Y.

Filed Jan. 27, 1971, Ser. No. 110,112
Int. Cl. H04m *3/48*
U.S. Cl. 179—18 BG 23 Claims

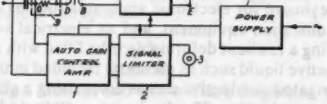


Automatic call-back system for automatic telephone exchanges which permits calling party to make another call while call-back is in effect without abandoning this feature, and also permits the setting up of the call-back feature after a called subscriber number has been dialed and without the need to re-dial such number subsequent to the dialing of a special call-back digit, including the provision of a storage unit capable of simultaneously storing a plurality of pairs of calling and called subscriber numbers in respective storage locations, store control means associated with each storage location for indicating whether data is stored therein and scanning means for periodically scanning said store control means.

3,707,606
ARRANGEMENT FOR OPERATORS TELEPHONE SET

Michel Crespel, Franconville, and Christian Valat, Bangui, both of France, assignors to Telefonaktiebolaget L M Ericsson, Stockholm, Sweden

Filed July 30, 1970, Ser. No. 59,569
Claims priority, application France, Aug. 5, 1969, 6926875
Int. Cl. H04m *1/60*
U.S. Cl. 179—81 B 5 Claims

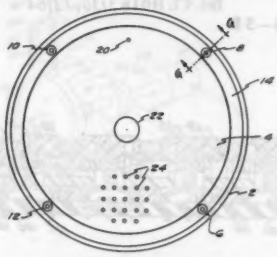


Electronic arrangement for operators' telephone sets for connection to a telephone exchange of a local battery system as well as a central battery system. The arrangement comprises an amplifier having a selectably constant output level and a signal limiter for receiving and a sidetone-threshold circuit for transmission. The arrangement gives a considerable improvement of the receiving as well as of the transmission conditions for the operators, especially when many operators are stationed in the same room.

3,707,607
HANDS-FREE EMERGENCY CALL BOX

Willis C. Reddick, Corinth, Miss., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Filed Aug. 10, 1970, Ser. No. 62,270
Int. Cl. H04m *1/04*
U.S. Cl. 179—100 L 4 Claims

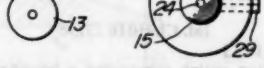


An all weather emergency-reporting telephone call box and system is provided. The call box uses a speaker and microphone for voice reception and transmission, respectively. The housing is formed of heavy material in a configuration selected to minimize the opportunity for vandalism. Direct communications access to the emergency station can be gained by the operation of one push-button switch which operates equipment preparing the system for hands-free operation.

3,707,608
METHOD AND APPARATUS FOR DUPLICATING A MAGNETIC TAPE

Hiroshi Sugaya, Suita; Fukashi Kobayashi, Hirakata, and Mitsuaki Ono, Osaka, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Continuation of Ser. No. 747,679, July 25, 1968, abandoned.
This application June 28, 1971, Ser. No. 157,749
Claims priority, application Japan, Dec. 28, 1967, 43/12; Dec. 28, 1967, 43/75; Aug. 2, 1967, 42/50058; Aug. 10, 1967, 42/51672; Jan. 30, 1968, 43/6449; Oct. 14, 1967, 42/88266; Dec. 28, 1967, 43/78; Oct. 4, 1967, 42/84660; Jan. 12, 1968, 43/2265
Int. Cl. G11b *5/86*
U.S. Cl. 179—100.2 E 25 Claims



A method of and apparatus for duplicating a magnetic tape by taking-up a recorded magnetic tape of high coercive force and an unrecorded magnetic tape of low coercive force on one reel with the magnetic coating thereof in close contact with each other and impressing an alternate magnetic field externally on said tapes as they are taken up on the reel thereby to transfer a signal on said recorded tape onto said unrecorded tape.

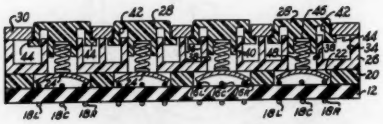
ERRATUM

For Class 179—110 see:
Patent No. 3,707,131

3,707,609
DIAPHRAGM PUSHBUTTON SWITCH ARRAY FOR KEYBOARDS

Martin H. Dapot, Pawtucket, and Henry J. Boulanger, Cumberland, both of R.I., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Oct. 27, 1971, Ser. No. 192,802
Int. Cl. H01h *5/30, 13/64*
U.S. Cl. 200—5 R **5 Claims**



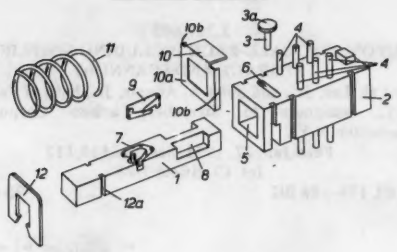
A system employing a keyboard comprises a base mounting an array of key bodies each adapted to reciprocably move to cause actuation of electrical circuits. A diaphragm is employed as an electrical conductor moving into and out of engagement with underlying contacts upon actuation and deactuation of the key body. Bounding problems have been minimized while maintaining tactile feedback by locating a spring member between the key and its respective diaphragm providing increased motion differential and by providing elongate guiding surfaces which eliminate skew movement of the key. Several forms of keys and key mountings are shown embodying the elongated guideway including an elongated hub molded in the bezel plate and receiving a close fitting rod portion of the key, a separate tubular guide and close fitting plunger, and a key having tabs extending laterally therefrom, the tabs slidably received in grooves formed in the base. Another embodiment particularly useful where two or more circuits are to be actuated from the same key employs a second spring to maintain the diaphragm away from the underlying contacts until the key is depressed thereby precluding undesirable back circuits without the use of blocking diodes or the like.

3,707,610
ALTERNATE ACTION MECHANISM FOR PUSHBUTTON SWITCH WITH FLAT-HEADED LATCHING PIN

Gwyn Davies, Cwmbach, England, assignor to A. B. Electronic Components Limited, Abercynon, Glamorgan, England

Filed April 5, 1971, Ser. No. 131,051
Claims priority, application Great Britain, April 7, 1970, 16,519/70
Int. Cl. H01h *13/56*
U.S. Cl. 200—153 J **4 Claims**

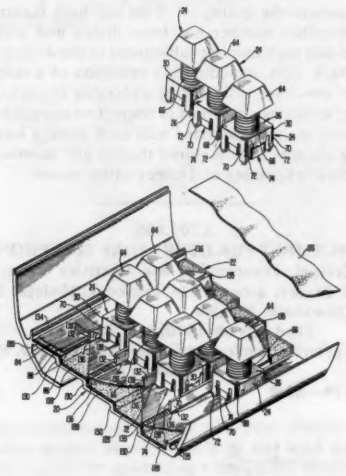
A push button switch comprising a housing containing a plurality of contacts, a push button slider having a cam track in one surface thereto and being adapted to be inserted into the housing to connect selected contacts in pairs, the slider being biassed towards a position of rest; and a flat headed straight pin inserted through a slot in the housing perpendicular to the longitudinal axis of the slider into engagement with the cam track of the slider. An enlarged flat head on the pin is held between a flat surface surrounding the slot and a retaining plate, so that the pin remains perpendicular to the plane of the upper surface of the slider. On successive depressions of the slider, the pin moves across the transverse slot in the housing and along the path of the cam track to control the degree of ingress of the slider in the housing.



3,707,611
CODING KEYBOARD AND ELECTRICAL SWITCH THEREFOR

Robert H. Twyford, Falls Church, Va., assignor to Mechanical Enterprises Incorporated

Continuation-in-part of Ser. No. 866,488, Oct. 15, 1969. This application Sept. 29, 1970, Ser. No. 76,496
Int. Cl. H01h *29/00*
U.S. Cl. 200—211 **28 Claims**



A keyboard for electronic apparatus such as computer and communication equipment, and an electrical switch therefor including a resilient deformable tube filled with an electrically conductive liquid such as mercury. Included in the keyboard is an elongated conductive means comprising a plurality of side-by-side conductors. The keyboard switch modules are each provided with a plurality of contact elements and mounting means adapted for holding the contact elements in anyone of a plurality of predetermined positions whereby each switch module can be encoded and thus preconditioned for electrically energizing a different preselected combination of the conductors to represent the desired code data unique to each switch.

3,707,612

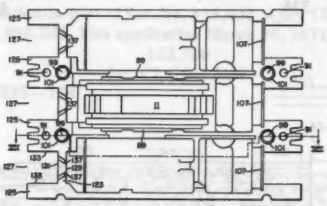
CIRCUIT INTERRUPTER WITH IMPROVED MOLDED INSULATING HOUSING FORMED WITH VENT PASSAGE MEANS

Nick Yorgin, Ambridge, and John G. Salvati, Beaver Falls, both of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Division of Ser. No. 11,452, Feb. 16, 1970, Pat. No. 3,632,939. This application June 15, 1971, Ser. No. 153,198

Int. Cl. H01h 9/30, 33/76

U.S. Cl. 200—168 R 4 Claims



A circuit interrupter comprises a molded insulating housing molded to form improved vent passage means for venting arc gases from the housing.

3,707,613

METHOD AND APPARATUS FOR MANUFACTURING SPHERICAL METALLIC VESSELS OR HEMISPHERICAL VESSEL HEADS

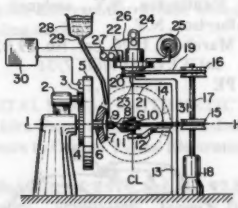
Akira Ujile, Kobe, Japan, assignor to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan

Filed March 26, 1970, Ser. No. 22,772

Claims priority, application Japan, March 28, 1969, 44/23140

Int. Cl. B23k 9/04

U.S. Cl. 219—76 3 Claims



A spherical container or a hemispherical head for a pressure vessel, is formed integrally of deposited weld metal. A first turntable is rotatable about a substantially horizontal axis which constitutes one diameter of the sphere, and a second turntable is rotatable about a substantially vertical axis which constitutes another diameter of the sphere perpendicular to the first diameter. A small spherical metallic segment constitutes a starting piece, and has a wall thickness equal to that of the vessel to be formed, the segment forming the base of a solid central angle of the sphere.

3,707,614

WELDER

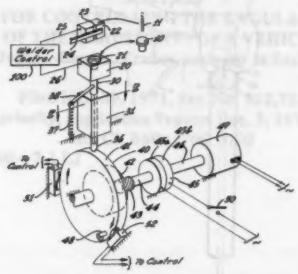
Delbert L. Phillips, Malibu, and Lewis Clark Feightner, Chatsworth, both of Calif., assignors to New Twist Connector Corporation, Santa Monica, Calif.

Division of Ser. No. 715,773, March 25, 1968, Pat. No. 3,609,284. This application June 1, 1970, Ser. No. 54,056

Int. Cl. B23k 9/00, 11/04

U.S. Cl. 219—97 15 Claims

One of two small workpieces that are to be welded together is slidingly mounted in a fixed workholder and the other is firmly gripped by a movable workholder. To carry out an operating cycle, the movable workholder is reciprocated by two lobes of a cam that makes on revolution when momentarily connected to a relatively large mass that rotates at constant velocity. Initially the first slidable workpiece is placed at random at a position that is advanced slightly from the position desired for the welding operation but the first reciprocation of



the second workpiece is against the slidable workpiece to retract it precisely to the desired position for a welding operation. In carrying out the second reciprocation, the two workpieces are charged by capacitance and as the gap between the two workpieces narrows a high frequency pulse triggers an arc between the two workpieces and the continued advance of the second workpiece crowds the two workpieces together for final fusion.

3,707,615

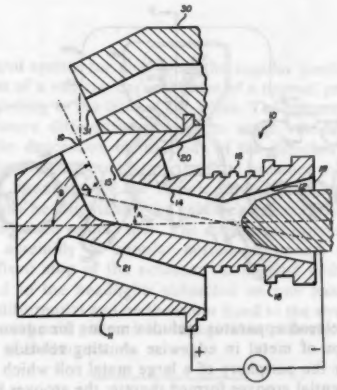
NOZZLE FOR A PLASMA GENERATOR

Anthony J. Rotolico, Long Island, and Edwardo Romero, Medford, both of N.Y., assignors to Metco Incorporated, Westbury, L.I., N.Y.

Filed Nov. 12, 1971, Ser. No. 198,251

Int. Cl. B23k 9/04

U.S. Cl. 219—121 P 10 Claims



An angular nozzle electrode for plasma generating devices is disclosed. The nozzle includes an inlet end, an intermediate portion and an outlet portion in angular relationship so as to maximize the function and operational life of the nozzle electrode.

3,707,616
EXHAUST DEVICES

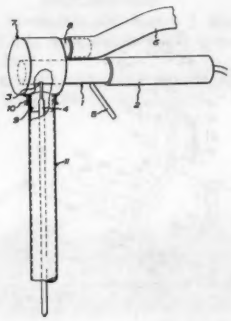
Erik A. Lindkvist, Korpralsvagen 44 a, 902 53 Umea, Sweden

Filed Nov. 24, 1971, Ser. No. 201,709

Claims priority, application Sweden, Nov. 25, 1970, 15947/70

Int. Cl. B23k 9/26

U.S. Cl. 219—136 4 Claims



An exhaust device for gases and fumes in electric welding processes includes an exhaust conduit which is drawn up to the means holding the electrode. Arranged in the exhaust conduit is a connecting socket or like element to which a sleeve enclosing the electrode can be fixed. The sleeve is of such a nature as to be gradually disintegrated by the electric welding arc so that the electrode in the course of its successive consumption will have its end portion located outside the mouth or end of the sleeve.

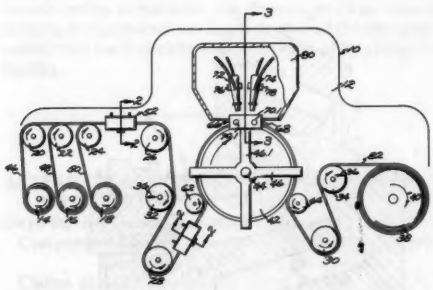
3,707,617
APPARATUS FOR MAKING EDGELAY THERMOSTATIC BIMETALS

Carlton G. Rutter, Seekonk, Mass.; Richard F. Barry, Warwick, R.I., and Frank J. McLennan, Brockton, Mass., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed June 14, 1971, Ser. No. 152,943

Int. Cl. B23k 9/00

U.S. Cl. 219—137 6 Claims



The disclosed apparatus includes means for advancing the three strips of metal in edgewise abutting relation to each other over the periphery of a large metal roll which has two circumferential grooves formed therein, the grooves being arranged to be aligned with pairs of abutting strip edges as the strips are advanced over the roll. A pair of welding means are disposed in closely spaced relation to each other to weld respective pairs of abutting strip edges together substantially simultaneously while the strip edges are positioned over the roll grooves, the large metal roll serving to rapidly conduct heat away from the strips as they are welded to minimize the width of the weld formed between each pair of metal strips. In a preferred embodiment of the apparatus, additional rolls engage other surfaces of the metal strips welded to conduct additional heat away from the strips for further reducing the widths of the welds formed between the strips.

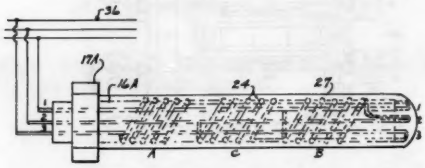
3,707,618
ELECTRIC IMMERSION HEATER ASSEMBLY

Edward J. Zeitlin, Purdys, and Lee Leighton, Mohegan Lake, both of N.Y., assignors to Edward J. Zeitlin, Purdys, N.Y.

Filed July 12, 1971, Ser. No. 161,596

Int. Cl. H05b 1/00

U.S. Cl. 219—336 5 Claims



An electric immersion heater assembly for hot water heating boilers provided in one form as a single phase circuit with a central conductive reinforcing rod that is utilized as one electrode and a ceramic body surrounding said rod with a resistance heating wire spirally wound upon said ceramic body and connected at its other end with a second electrode, said electrodes extending out of the heater at the unimmersed end and said immersed portion glazed with a non-conductive coating. A further embodiment includes a multi-phase circuit and in which the central core includes three reinforcing conductive electrodes that are Delta connected to a multiphase power line.

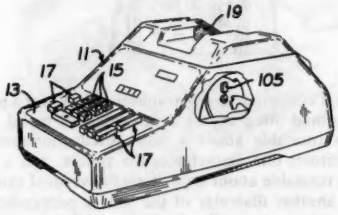
3,707,619
ACTUATING APPARATUS FOR A BUSINESS MACHINE

Marvin Shapiro, Huntington, N.Y., assignor to Digitronics Corporation, Albertson, N.Y.

Filed March 12, 1970, Ser. No. 19,034

Int. Cl. G06c 9/00, 7/04

U.S. Cl. 235—61 PE 16 Claims



An actuating apparatus for entering data into a pin-box type business machine having a plurality of selectively and individually operable character and function keys wherein solenoids are provided which are responsive to operate signals for operating the pins in the pin-box memory. A signal generator is provided which is responsive to the operation of the character keys for applying the operate signal to the appropriate solenoid. Also provided is inhibit means for preventing the generation of the operate signal for a preselected interval of time and energizing means which operates the inhibit means in response to the operate signal. The invention also includes means for energizing any one solenoid upon the partial depression of the solenoid core to enter a character or function.

3,707,620

Patent Not Issued For This Number

3,707,621

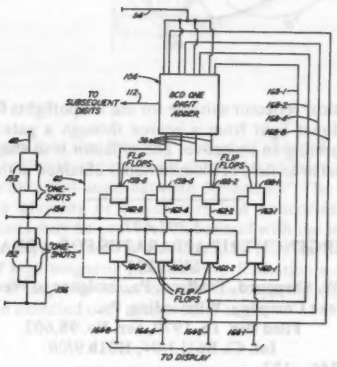
SUCCESSIVE ADDITION UTILIZING A BISTABLE LATCH

Ronald L. Krutz, and Thomas J. Villella, both of c/o Gulf Research & Development Co., P.O. Drawer 2038, Pittsburgh, Pa.

Continuation-in-part of Ser. No. 815,838, April 14, 1969, Pat. No. 3,598,283. This application March 10, 1971, Ser. No. 122,726

Int. Cl. G06f 7/50

U.S. Cl. 235—174 **9 Claims**



An improved electronic latch for causing a train of pulses to operate an adding device which is constantly fed a signal proportional to some number in such a way that for each pulse of said train of pulses said number will be added to the previous total in said adding device.

3,707,622

DIGITAL SERIAL ARITHMETIC UNIT

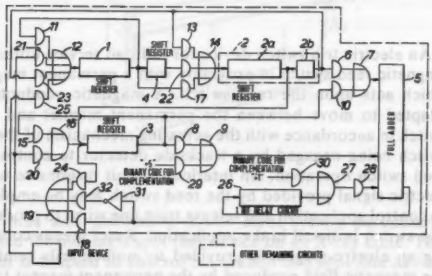
Isao Hatano; Akira Nagano, and Kenzi Yosimoto, all of Kyoto, Japan, assignors to Omron Tateisi Electronics Co., Kyoto-fu, Japan

Filed Dec. 14, 1970, Ser. No. 97,883

Claims priority, application Japan, Dec. 15, 1969, 44/101159

Int. Cl. G06f 7/50

U.S. Cl. 235—176 **10 Claims**



An electronic system for use in calculating machines comprises a plurality of serial shift registers, an appropriate number of gates and a single serial full adder. This electronic system is adapted to perform the essential arithmetic operations in the calculator in a simple manner without necessitating a large number of components.

3,707,623

SYSTEM FOR CONTROLLING THE ANGULAR POSITION OF THE HEADLIGHTS OF A VEHICLE

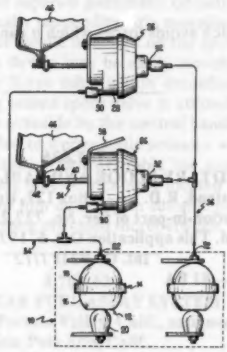
Charles Rivolier, Cesson, France, assignor to Societe Anonyme D.B.A.

Filed Nov. 29, 1971, Ser. No. 202,751

Claims priority, application France, Dec. 3, 1970, 70-43444

Int. Cl. B60q 1/00, 3/00

U.S. Cl. 240—7.1 LJ **5 Claims**



A control system for modifying the angular position of the headlights of a vehicle, on both sides of a normal preset position, according to the trim of the latter. The system utilizes a fluid pressure differential control to sense vehicle load by sensing the depression of the body of the vehicle relative to the chassis. By communicating the fluid pressure to an actuator at the headlights of the vehicle, the angular relationship between the headlights and the vehicle body may be varied as a function of the vehicle trim. The actuator is provided with a movable assembly of annular nested abutments resiliently urged a fixed stop of the actuator casing, and with a piston connected to the headlights subjected on one hand to said pressure differential and on the other hand to the strength of a spring biasing said piston into engagement with said movable assembly of abutments.

3,707,624

LOADING PLATFORM LIGHT FIXTURE

Anthony Marsh, 51 Revere Street, Hull, Mass.

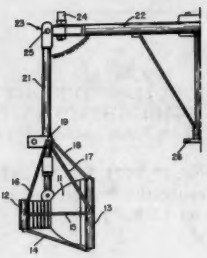
Filed Nov. 12, 1970, Ser. No. 88,822

Int. Cl. F21v 15/00, 21/00

U.S. Cl. 240—54 A **4 Claims**

A conventional light fixture having a protective shield

which absorbs impact and destructive forces and flexible coupling which avoids forces which it cannot withstand.



3,707,625

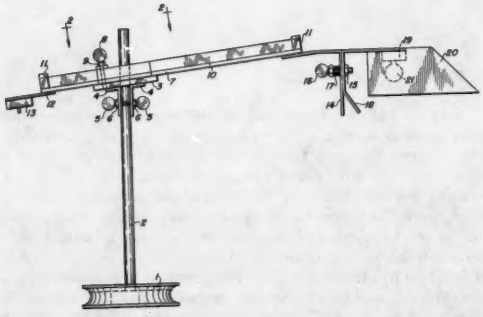
ROTARY FLOOR AND TABLE LIGHT

Ralph L. Hustead, R.D. No. 2, Box 127, Union Town, Pa.

Continuation-in-part of Ser. No. 727,265, May 7, 1968, abandoned. This application Oct. 6, 1970, Ser. No. 78,555

Int. Cl. F21s 1/12

U.S. Cl. 240—81 BA 2 Claims



A bracket with a pair of parallel vertical plates engages opposite sides of a round post and has end portions projecting away from the post in opposite directions. An adjusting screw at each side of the post draws the ends of the plates toward each other to press the plates tightly against the post. A cross arm is supported by the brackets transversily of the post and carries a light socket on one end. This arm is adjustable lengthwise across the post to vary the distance between the light socket and the post.

3,707,626

OPTICAL REFLECTOR

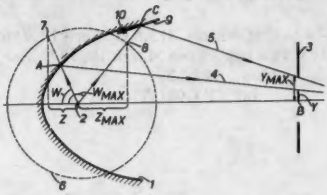
Robert John Deichen, 22 Beacon Grove, 31/33 High Street, Carshalton, England

Filed April 8, 1971, Ser. No. 132,490

Claims priority, application Great Britain, April 10, 1970, 17277/70

Int. Cl. F21v 7/00, 7/04

U.S. Cl. 240—103 R 2 Claims



An optical reflector suitable for use in spotlights for projectors to direct light from a source through a gate to a lens system forming an objective. The reflector is so shaped that a substantial even field of illumination is obtained at the gate.

3,707,627

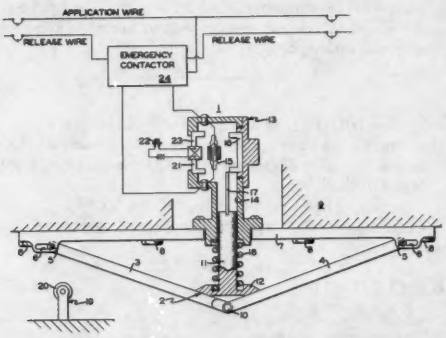
EMERGENCY TRIP APPARATUS FOR A BRAKING SYSTEM

Charles W. Sheppard, Trafford, Pa., assignor to Westinghouse Air Brake Company, Wilmerding, Pa.

Filed Dec. 16, 1970, Ser. No. 98,602

Int. Cl. B61l 3/04; H01h 9/00

U.S. Cl. 246—192 6 Claims



An electric trip switch device for railroad service utilizing a magnetic reed switch in proximity with a permanent magnet, which acts upon the reed switch. A magnetic conductor is adapted to move between the permanent magnet and reed switch in accordance with the actuating mechanism of the trip switch being engaged by a trackside detector to control the reed switch operation. An interlock circuit responsive to the electric signal provided by the reed switch may be employed to control application and release train line wires to produce a trip switch initiated brake application. Reset means comprising an electro-magnet is provided to momentarily reinforce the magnetic field produced by the permanent magnet to initially close the reed switch contacts following a trip switch actuation, after which the contact closure is maintained by the permanent magnet.

3,707,628

MAGNETIC LENSES

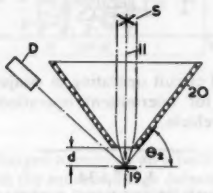
Richard Bassett, near Cheltenham, and Thomas Mulvey, Birmingham, both of England, assignors to National Research Development Corporation, London, England

Continuation of Ser. No. 753,127, Aug. 16, 1968, abandoned. This application March 22, 1971, Ser. No. 126,930

Claims priority, application Great Britain, Aug. 18, 1967, 38,250/67

Int. Cl. H01j *37/26*; G01n *23/22*

U.S. Cl. 250—49.5 PE 11 Claims



A magnetic lens, for focusing a beam of charged particles, includes a coil at least part of which, at an end thereof, tapers conically with a half-angle between 20° and 85°. The coil may comprise a plurality of conductors laid concurrently, and cooling means may be provided in contact with the inner surface. Desirably, the coil is shrouded, at least in part, with material of high magnetic permeability. Radiation such as X-rays, from a target in focus beyond the tapering end of the coil, may be detected over a large solid angle.

3,707,629

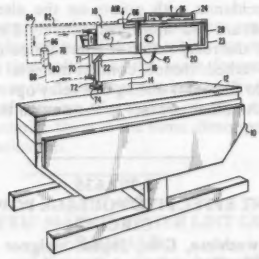
PNEUMATIC POWER ASSIST APPARATUS FOR SPOT FILM DEVICE

John Ronald Colston, Annapolis, Md., assignor to CGR Medical Corporation, Cheverly, Md.

Filed Aug. 18, 1971, Ser. No. 172,631

Int. Cl. G01n *21/34*

U.S. Cl. 250—58 15 Claims



A three axis pneumatic power assist system particularly adapted for moving a spot film device on an X-ray table. The system is adapted to control the motion of a spot film device accurately and safely with little effort from the operator and preferably includes a wrap-around handle which allows the operator to feel the force exerted by the spot film device on a patient and to operate various controls simultaneously.

3,707,630

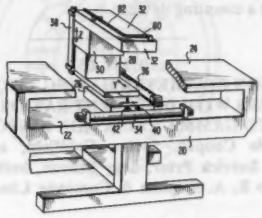
PNEUMATIC POWER ASSIST APPARATUS FOR SPOT FILM DEVICE

Harry E. Koerner, and William C. Horsey, both of Baltimore, Md., assignors to CGR Medical Corporation, Cheverly, Md.

Filed Oct. 5, 1971, Ser. No. 186,660

Int. Cl. G01n *21/34*

U.S. Cl. 250—58 19 Claims



A three axis pneumatic power assist system which is particularly adapted to move a spot film device over a patient lying on an X-ray table. Three separate pneumatic circuits are adapted to power three mutually perpendicularly movable carriages in response to a control handle mounted on the spot film device so that the spot film device may be easily movable anywhere over the top of the X-ray table within predefined limits. A double acting spring biased spool valve is utilized for each of the three axes and is actuable by the control handle to cause a control signal to be fed to a pneumatic actuator which powers the respective carriage. When desirable the control handle and the control valves may be remotely located from the X-ray table and the spot film device with suitable pneumatic interconnection lines being provided therebetween.

3,707,631

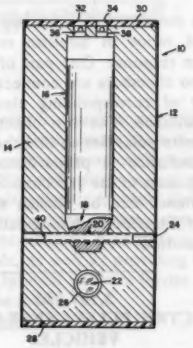
NUCLEAR FUEL ASSAY SYSTEM

Samuel Untermyer, Portola Valley, Calif., assignor to National Nuclear Corporation, Palo Alto, Calif.

Filed April 2, 1970, Ser. No. 25,157

Int. Cl. G01t *1/20*, *3/00*

U.S. Cl. 250—71.5 R 17 Claims



A system for the non-destructive assay of nuclear fuel is disclosed. A scintillating body is positioned near the fissionable fuel species to be assayed. An interrogating beam of low energy neutrons is passed through a moderating material to reduce the neutrons to the thermal or low epi-thermal regions. The moderated interrogating beam penetrates a selected segment of the fuel. Fission of the fissionable species radiates fast neutrons into the scintillating body producing proton recoil in hydrogenous material. These protons produce scintillation events in large sized phosphor grains. Photons from the scintil-

lation events are carried through a transparent light guide to a light detector for counting. The light guide is disclosed as a substantially transparent, non-scintillating polymer surrounded by a light reflecting layer which in turn is covered by a light shield. In a modified form the nuclear fuel to be assayed is positioned in a cavity enclosed by a moderating material with a neutron source and scintillating body radially positioned from the cavity. The scintillating material is arrayed in a series of grooves formed in a transparent light guide connected with a counting device.

3,707,632

RADIATION DOSIMETER HAVING TWO IONIZATION CHAMBERS WITH DIFFERENT RATIOS OF NEUTRON TO GAMMA RADIATION RESPONSES

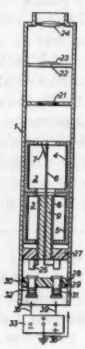
Paul Neville Cooper, Sutton Coldfield, and Bryan John Tymons, Berrick Prior, near Benson, both of England, assignors to R. A. Stephen & Company Limited, Surrey, England

Filed Nov. 30, 1970, Ser. No. 93,700

Claims priority, application Great Britain, Dec. 2, 1969, 58,857/69

Int. Cl. G01t *1/14, 3/00*

U.S. Cl. 250—83.3 PD **10 Claims**



An ionization dosimeter includes two ionization chambers having different ratios of neutron radiation response to gamma radiation response. One pair of corresponding electrodes of the two chambers are connected directly together. The other pair of corresponding electrodes are coupled through a capacitance. The two chambers are electrically charged in opposite polarities so that the change in potential across the capacitance is proportional to the difference between the responses of the two chambers. The value of the coupling capacitance can be chosen so that the potential represents either the effective biological radiation dose, or the neutron radiation dose.

3,707,633

THERMOELECTRIC PULSE GENERATOR FOR MOTOR VEHICLES

Eckhard Ursel, Kappelrodeck, Germany, assignor to Robert Bosch G.m.b.H, Stuttgart, Germany

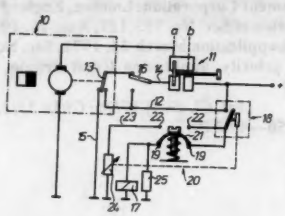
Filed March 1, 1972, Ser. No. 230,759

Claims priority, application Germany, March 10, 1971, P 21 11 447.6

Int. Cl. H01h *35/00*

U.S. Cl. 307—106 **10 Claims**

A pulse generator arrangement in which a heat-sensitive bimetallic snap disc is connected to a heating circuit when in its initial position. After being heated by current passing directly through the snap disc, the element moves to an actuated position in which a second circuit becomes closed. In the second circuit, the bimetallic snap disc becomes subjected to a lower heating current and thereby cools to a temperature required for the disc to snap back to its initial position. A



motor and control circuit operating in conjunction with the snap disc serves for intermittent operation of windshield wipers in a motor vehicle.

3,707,634

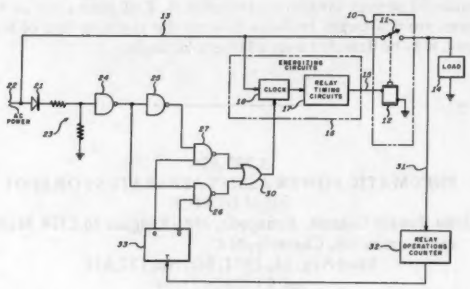
APPARATUS FOR EXTENDING CONTACT LIFE OF RELAYS UTILIZED FOR A.C. LOAD SWITCHING

David Arlen, Jericho; Louis A. Guido, Northport, and Lawrence P. Quinn, Glen Cove, all of N.Y., assignors to Sperry Rand Corporation

Filed March 31, 1971, Ser. No. 129,771

Int. Cl. H01h *1/50*

U.S. Cl. 307—138 **6 Claims**



Apparatus for use with a relay utilized to switch alternating current loads to extend the contact life thereof. Circuits are included to cause alternate energization of the relay to occur in time coincidence with points on the alternating current waveform that are 180° apart, respectively. Thus, the alternate operations of the relay occur at alternate polarities of the a.c. waveform switched. Hence, contact material transferred from one contact to the other during one relay operation is re-transferred from the other contact to the one on the next following relay operation.

3,707,635

CONSTANT EFFECTIVE VOLTAGE POWER SOURCE CIRCUIT

Yoshichi Kawashima, Gifu, Japan, assignor to Nippondenso Kabushiki Kaisha

Filed Nov. 3, 1970, Ser. No. 86,399

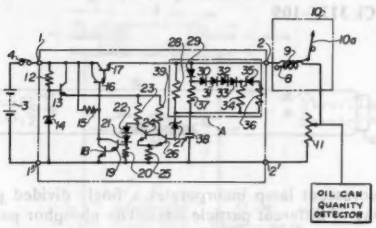
Claims priority, application Japan, Dec. 16, 1969, 44/101056

Int. Cl. G05f *1/40*

U.S. Cl. 307—297 **5 Claims**

A constant effective voltage power source circuit utilizing the charging and discharging of a capacitor. It includes an output voltage detection circuit having non-linear elements such as a diode and a constant-voltage diode which impart a

parabolic current-voltage characteristic to the power source circuit. The output voltage detection circuit functions to vary the charging current into the capacitor, which is repeatedly



charged and discharged to provide an effective output voltage, in accordance with the source voltage detected by it to control the effective output voltage to a constant value.

3,707,636

HIGH VOLTAGE GENERATING APPARATUS UTILIZING PIEZOELECTRIC TRANSFORMERS

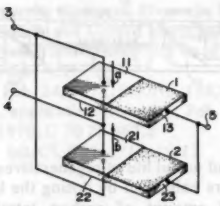
Keiji Inoue, Yokohama, Japan, assignor to Denki Onkyo Company Limited, Tokyo, Japan

Filed Sept. 23, 1970, Ser. No. 74,808

Claims priority, application Japan, Sept. 30, 1969, 44/92792 (utility model)

Int. Cl. H01v *7/00*

U.S. Cl. 310—8.1 **4 Claims**



In a high voltage generating apparatus, there are provided a plurality of piezoelectric transformers which are connected in parallel and a driving voltage of the same frequency as the natural frequency or its higher harmonic is applied across the parallel connected driving electrodes of the piezoelectric transformers to polarize them in the same direction relative to their residual polarization.

3,707,637

DYNAMOELECTRIC MACHINE WITH LINT GUARD FOR TERMINALS

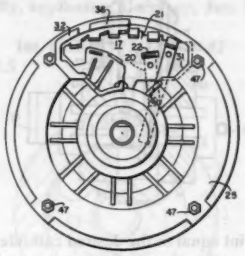
Thomas Charlton, and Kenneth L. Cation, both of Lima, Ohio, assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed April 28, 1971, Ser. No. 138,144

Int. Cl. H02k *11/00*

U.S. Cl. 310—71 **5 Claims**

A lint guard is provided that prevents dust and lint from entering a motor in such a quantity that a fire hazard may be created and yet the lint guard does not require an assembly operation after the complete wiring of the motor. The lint guard is a generally cup-like member that fits in the conduit box opening of the motor end bell with one or more openings



to accommodate terminals extending from a terminal board mounted on the end bell. The lint guard is preferably molded from a fire retardant plastic material.

3,707,638

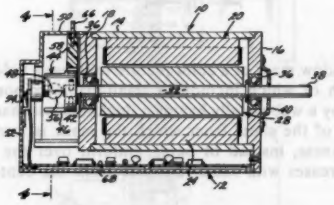
ELECTRIC MOTOR UTILIZING A FERRITE STATOR OF LOW COERCIVENESS, FERRITE ROTOR OF HIGH COERCIVENESS, AND PHOTO-ELECTRIC COMMUTATION

James C. Nailen, Santa Ana, Calif., assignor to Alumina Ferrite Corporation of America, Chatsworth, Calif.

Filed March 9, 1970, Ser. No. 17,712

Int. Cl. H02k *21/04, 21/44*

U.S. Cl. 310—152 **1 Claim**



An electric motor with a wound stator and a permanent magnet rotor, wherein optical commutation is combined with a ferrite stator core to provide improved high speed capability and efficiency, long life, and utility in any atmosphere. A novel pole format of six poles or multiple thereof combined with electronic pulsing gives the motor a stepping capability enabling it to follow incremental tape storage, computer, or master-slave commands, as well as providing further torque and speed potential. Optional use of a ferrite rotor provides extreme longevity to the motor.

3,707,639

ELECTRON DISCHARGE TUBES

Alan Hugh Pickering, Chelmsford, England, assignor to English Electric Valve Company Limited, London, England

Filed Sept. 14, 1970, Ser. No. 72,040

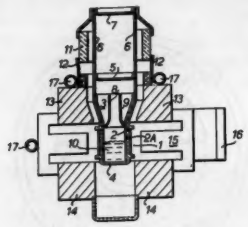
Claims priority, application Great Britain, Sept. 16, 1969, 45,692/69

Int. Cl. H01j *23/04*

U.S. Cl. 313—30 **19 Claims**

An electron discharge tube has its cathode carried by a supporting structure constituted by a closed hollow container which is in good heat exchanging relation with the cathode. In

the container is a quantity of sodium, potassium, caesium, rubidium, lithium or an alloy of two or more of these metals hav-



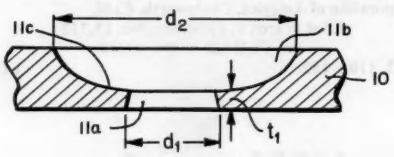
ing a boiling point equal to the desired cathode operating temperature. In operation the container acts as a boiler and condenser for the material.

3,707,640

SHADOW MASK HAVING DOUBLE-SIZED APERTURES

Martin L. Lerner, River Forest, Ill., assignor to Zenith Radio Corporation, Chicago, Ill.

Filed June 18, 1970, Ser. No. 47,401
Int. Cl. H01j *29/06, 29/08, 31/20*
U.S. Cl. 313—85 S **3 Claims**



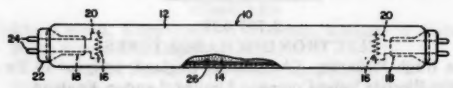
The shadow mask of a color picture tube has a field of apertures each of which includes a small-diameter portion surrounded by a web usually having a thickness less than half the thickness of the sheet from which the mask is formed. The web thickness, instead of being uniform over the aperture field, decreases with radial distance from the center of the field.

3,707,641

DISCHARGE DEVICE WHICH UTILIZES A MIXTURE OF TWO FLUORESCENT MATERIALS

William A. Thornton, Cranford, N.J., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Dec. 22, 1970, Ser. No. 100,680
Int. Cl. H01j *61/44*
U.S. Cl. 313—109 **5 Claims**



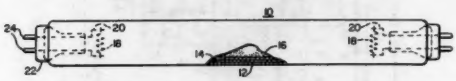
Discharge device incorporates phosphor combination wherein a first phosphor responds to ultraviolet excitation to provide an emission both in the visible and the ultraviolet. A second phosphor is excited by the ultraviolet emission of the first phosphor to emit in the visible, thereby to provide a very efficient composite emission.

3,707,642

VAPOR LAMP WHICH INCORPORATES A SPECIAL PHOSPHOR COATING

William A. Thornton, Jr., Cranford, N.J., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Aug. 31, 1970, Ser. No. 68,221
Int. Cl. H01j *61/44, 61/48*
U.S. Cl. 313—109 **7 Claims**



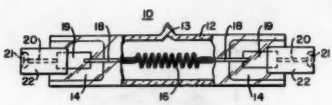
Fluorescent lamp incorporates a finely divided phosphor coating of different particle sizes. The phosphor particles of the coating which are positioned next to the envelope inner surface are preferably relatively fine and are smaller than the relatively coarse particles which are positioned farther from the envelope inner surface. Such a special phosphor coating enables the total amount of coated phosphor to be considerably reduced.

3,707,643

HALOGEN REGENERATIVE-CYCLE INCANDESCENT LAMP

Lymperios N. Yannopoulos, and Alfred H. Pebler, both of Pittsburgh, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed June 30, 1971, Ser. No. 158,435
Int. Cl. H01k *7/00*
U.S. Cl. 313—222 **4 Claims**



The quality and useful life of regenerative-cycle type incandescent lamps are enhanced by dosing the lamp with a carefully controlled amount of carbon tetrabromide that is vaporized and admixed with an inert fill gas, such as a mixture of 90 percent argon and 10 percent nitrogen. Both oxygen and hydrogen are purged from the lamp prior to the gas-filling operation and are excluded from the CBr_4-dosed fill gas. A method for filling such lamps with a mixture of an inert gas and a small carefully-controlled amount of vaporized halogen-containing material that is monitored by infrared measuring techniques is also disclosed.

3,707,644

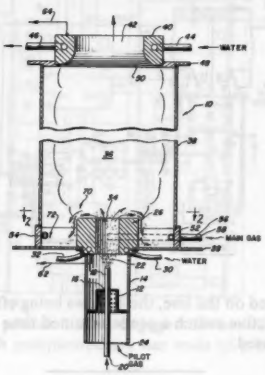
APPARATUS FOR HEATING GASES TO HIGH TEMPERATURES

Thomas J. Hirt; Richard D. Kissinger; John P. Kendall, and Karl H. Frantzen, all of Omaha, Nebr., assignors to Northern Natural Gas Company, Omaha, Nebr.

Filed Feb. 19, 1971, Ser. No. 116,893
Int. Cl. H01j *17/26;* **B23k** *9/00*
U.S. Cl. 313—231 **5 Claims**

Improved apparatus for heating gases to high temperatures without a flame produced by chemical combustion, including a pair of electrodes positioned in the gas stream, means for creating a distributed discharge through the gas stream between the electrodes, including the addition of an ionizing additive to the gas stream, and means providing a pressure differential zone adjacent the upstream electrode to form a recir-

culation of a portion of the ionized additives about the upstream electrode. The improved apparatus is especially advantageous in a process for titanium dioxide by heating oxygen, as well as other applications where the normal combustion would provide undesirable products during processing.



3,707,645

VIBRATION REDUCING ASSEMBLY FOR OBLONG DISCHARGE LAMP

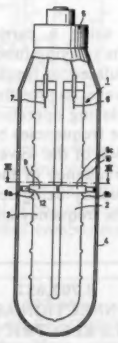
Urbaan Paul Marguerite Goossens, Elversele, Belgium; Willem Lodewijk Van Hoorn, and Gerard Marie Jules De Neve, both of Essasingel, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Feb. 24, 1971, Ser. No. 118,238

Claims priority, application Germany, Feb. 28, 1970, G 70 07 375.5; July 9, 1970, G 70 25 867.2

Int. Cl. H01j *1/18, 19/12*

U.S. Cl. 313—269 **6 Claims**



Shock and vibration are dampened in an oblong discharge lamp having a u-shaped tube, by the inclusion of resilient supports about each portion of the u-shaped tube to act as a buffer between the tube and outer envelope. The resilient supports include means for preventing rotation of the resilient supports about the legs of the u-shaped tube.

3,707,646

DELAY LINE FOR TRAVELLING WAVE TUBES

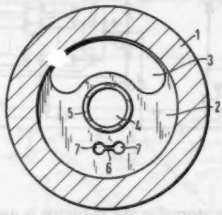
Franz Gross, Munich, Germany, assignor to Siemens-Aktiengesellschaft, Berlin and Munich, Germany

Filed Dec. 30, 1970, Ser. No. 102,766

Claims priority, application Germany, Jan. 14, 1970, P 20 01 487.3

Int. Cl. H01j *25/34*; 330 *42*

U.S. Cl. 315—3.5 **5 Claims**



A delay line for a travelling wave tube in the form of an inter-digital line arranged in a hollow conductor and having coupling slots in partitions between line segments, utilizes additional tuned slots to destroy undesired interfering frequencies.

3,707,647

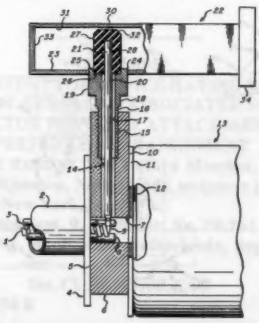
HIGH FREQUENCY VACUUM TUBE ENERGY COUPLER

John L. Rawls, Jr., Archer, Fla., assignor to Sperry Rand Corporation

Filed March 10, 1971, Ser. No. 122,877

Int. Cl. H01j *25/34*

U.S. Cl. 315—3.5 **7 Claims**



A high frequency transmission line coupler for transfer of propagating high frequency energy with respect to the interior of a high frequency vacuum tube is characterized by a rugged vacuum envelope system permitting transfer of high power with freedom from the development of electrical arcs and cracking and leaking of vacuum seals. The structure eliminates the need for making a vacuum seal at the inner conductor of the coupling transmission line element and provides greatly increased tolerance to thermal and other shock mechanisms.

3,707,648

INVERTER APPARATUS AND METHOD FOR HIGH FREQUENCY FLUORESCENT LAMP OPERATION

John Rosa, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

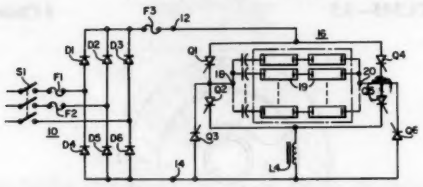
Filed Sept. 28, 1970, Ser. No. 75,917

Int. Cl. H05b *37/00*

U.S. Cl. 315—231 **8 Claims**

Apparatus and method for operating fluorescent lamps with high frequency AC inverted from a DC source comprises a

thyristor bridge having an inductor in circuit therewith. The bridge is adapted to be connected directly to the power source and is also adapted to be disconnected therefrom to permit "free-wheeling" operation of the lamps from energy previously stored in the inductor. For a part of each operating half cycle,



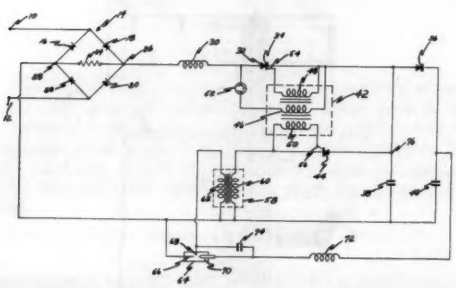
energy previously stored in the inductor is used to operate the lamps with the power supply being disconnected, and for the remainder of the half cycle, the lamps are operated directly from the power source and energy is stored in the inductor for lamp operation during a part of the next half cycle.

3,707,649

INTERMITTENT ARC ILLUMINATION SOURCE

James P. Kottenstette, Denver, Colo., assignor to Denver Research Institute, Denver City, Colo.

Filed July 20, 1970, Ser. No. 56,342
Int. Cl. H05b *37/00*
U.S. Cl. 315—239 **11 Claims**



An intermittent arc illumination source which utilizes a xenon short arc lamp operated in a pulse mode by a controlled discharge circuit operating from a low voltage alternating current source. The high current, high energy pulses are intermittently produced for conduction through the lamp at a rate sufficiently rapid to make the resulting bursts of illumination appear continuous to the human eye.

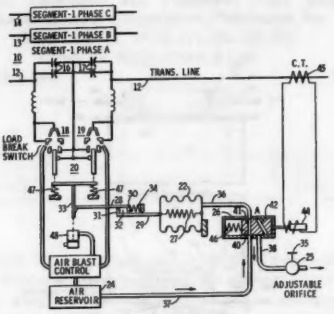
3,707,650

PROTECTIVE SYSTEM FOR SERIES CAPACITORS

Robert T. Innis, Ellettsville; Alan J. Berg, and James N. Santilli, both of Bloomington, all of Ind., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed May 22, 1969, Ser. No. 826,977
Int. Cl. H02h *7/16*
U.S. Cl. 317—12 A **5 Claims**

Time delay means for actuating a protective bypass switch for series capacitors comprising a bellows device containing a gaseous medium, a valve means pneumatically connected to the bellows, and an adjustable control orifice device, the control orifice being effective to release the gaseous medium from the bellows at a predetermined rate when an overcurrent con-



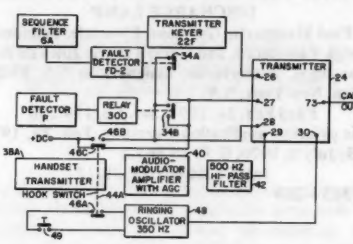
dition is sensed on the line, the bellows being effective to actuate the protective switch a predetermined time after the overcurrent is sensed.

3,707,651

FREQUENCY SHIFTED MODULATED CARRIER PROTECTIVE RELAYING SYSTEM WITH AMPLITUDE MODULATED VOICE COMMUNICATION

Herbert W. Lensner, East Orange, and Roger E. Ray, Parsippany, both of N.J., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed June 29, 1971, Ser. No. 157,880
Int. Cl. H02h *7/26*
U.S. Cl. 317—28 R **17 Claims**



Relaying apparatus using a carrier wave which shifts frequency to perform its relaying function and which carrier wave is amplitude modulated, at frequencies greater than the shift frequency of the wave, to provide a voice channel which has no effect on the relaying operation; the lower frequency magnitudes of the voice frequencies being attenuated so that the amplitude modulation of the wave is solely at frequencies higher than the shift frequency of the frequency modulated wave; the ringing frequency being selected to be above the magnitude of the shift in frequency and below the attenuated voice frequencies.

3,707,652

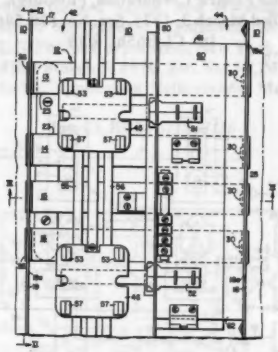
BUS BAR INTERCONNECTION ARRANGEMENT FOR STACKABLE ELECTRICAL PANELS

William F. Coffey, Stratford, and Kenneth R. Coley, Fairfield, both of Conn., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Feb. 28, 1972, Ser. No. 229,990
Int. Cl. H02b *1/20*
U.S. Cl. 317—120 **4 Claims**

A bus bar interconnection arrangement for stackable electrical panels includes bus bars mounted along the rear wall of

a panel enclosure with the bar ends bent forward along the side walls of the enclosure. Openings in the side walls expose



the bar ends to permit mating engagement and direct contact connection with complementary bar ends of a bus bar of an adjacent panel.

3,707,653

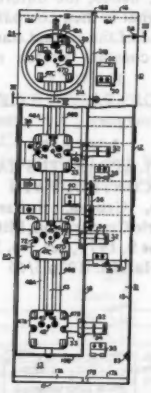
FRONT COVER ASSEMBLY FOR ELECTRICAL PANELS

William F. Coffey, Stratford, and Kenneth R. Coley, Fairfield, both of Conn., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Feb. 28, 1972, Ser. No. 229,994

Int. Cl. H02b *1/04, 9/00*

U.S. Cl. 317—120 **6 Claims**



A front cover assembly for electrical panels has detachable cover sections including mating sides fastened together so as to form an integral unit covering separate compartments of the panel and for removal of one cover section to open a panel compartment while another compartment remains closed by the cover assembly.

3,707,654

SERIES-PARALLEL ELECTRICAL CIRCUIT

Zygmunt A. Wachta, Boston, Mass., assignor to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.

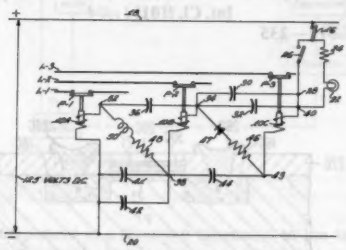
Filed May 26, 1971, Ser. No. 147,132

Int. Cl. H01h *47/10*

U.S. Cl. 317—157 **21 Claims**

A direct current electrical circuit in which any number of electrical devices may be energized in parallel with each other to momentarily provide a higher state of energization of the devices, or in which the devices may be energized in series with each other to provide a lower state of energization of the devices, with the circuit automatically reverting from the parallel energization state to the series energization state.

The invention is shown embodied in a trip coil circuit for a multi-pole electrical circuit breaker, such as a three-pole circuit breaker, in which each pole of the circuit breaker is provided with its own separate trip coil, including capacitor means in circuit with each respective trip coil whereby to place each respective trip coil electrically in parallel with the other trip coils across the direct current potential when the



trip circuit is initially energized for tripping operation, and additional circuit means connecting the trip coils in series with each other across the direct current potential to provide an alternative current flow path for the trip coils when the capacitor means become substantially fully charged, and also to provide a series path through the trip coils whereby a supervisory signal device may monitor for trip circuit continuity prior to initiation of a tripping operation. The circuit thereby combines the advantages of the fast response time characteristic of a parallel circuit with the supervisory capability of a series circuit for monitoring circuit continuity of the plurality of trip coils.

3,707,655

A SEMICONDUCTOR DEVICE HAVING PAIRS OF CONTACT AREAS AND ASSOCIATED SUPPLY CONDUCTOR POINTS OF ATTACHMENT IN A PREFERRED ARRANGEMENT

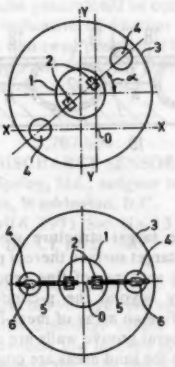
Joannes Gerard Rudolph, and Gerard Moesker, both of Mollenhutsweg, Nijmegen, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Sept. 9, 1970, Ser. No. 70,761

Claims priority, application Netherlands, Sept. 11, 1969, 6913812

Int. Cl. H01l *3/00, 5/00*

U.S. Cl. 317—234 R **5 Claims**



A semiconductor device features pairs of contact areas and associated supply conductor points of attachment in a

preferred arrangement which facilitates the manufacturing of the device. The intersection of the locus of all the lines defined by each contact area and associated supply conductor point of attachment is a single point.

3,707,656

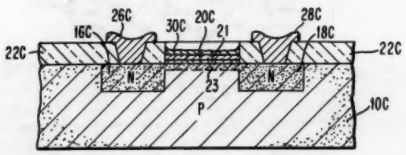
TRANSISTOR COMPRISING LAYERS OF SILICON DIOXIDE AND SILICON NITRIDE

David DeWitt, Poughkeepsie, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 572,119, Aug. 12, 1966, abandoned. This application Feb. 19, 1971, Ser. No. 117,077

Int. Cl. H011 *11/14*

U.S. Cl. 317—235 12 Claims



A semiconductor structure in which a substrate having surface regions of opposite type conductivity is covered with two different insulating layers. In a specific structure, the regions in the substrate form an isolated gate field effect transistor with a thin layer of silicon nitride forming the insulation in the gate portion and a thicker layer of silicon dioxide forming the insulation over the remainder of the device.

3,707,657

TARGET STRUCTURE FOR A VIDICON TUBE AND METHODS OF PRODUCING THE SAME

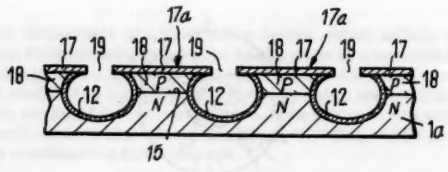
Werner Veith, Munich, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany

Filed Dec. 2, 1970, Ser. No. 94,382

Claims priority, application Germany, Dec. 3, 1969, P 19 60 705.7

Int. Cl. H011 *15/00*

U.S. Cl. 317—235 R 7 Claims



A vidicon tube target structure wherein a n-conductive signal plate has a target surface thereof provided with a p-conductive layer and an array of fine grooves extend from this layer downwardly beyond the p-conductive layer into the signal plate to define an array of mesa-like p-conducitve land areas. The peripheral groove walls are coated with an insulator material while the land areas are coated with a conductive metal. The grooves and lands are configured to provide an increased amount of utilizable effective target surface area for a scanning electron beam.

3,707,658

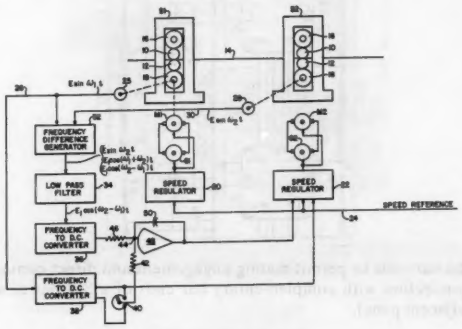
STRETCH CONTROL SYSTEM FOR ELONGATE MATERIAL

Laurence L. Hilsenbeck, Lancaster, N.Y., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed March 3, 1971, Ser. No. 120,586

Int. Cl. B65h *59/38*

U.S. Cl. 318—7 9 Claims



System for controlling the speeds of rolls or the like in succeeding tandem stands of a rolling mill, or the speed of the rolls of a single stand operative with a take-up or pay-off reel, to produce a predetermined amount of stretch in elongate material passing through the mill. This is accomplished by generating alternating current signals whose frequencies are proportional to the speeds of succeeding stands in a tandem mill, for example, and by utilizing these signals to generate a direct current signal proportional to the difference in respective frequencies, and, hence, the difference in speeds. The value of this latter signal is then compared with a reference value to vary the speed of the second stand or a reel to maintain a substantially constant stretch relationship for the material.

3,707,659

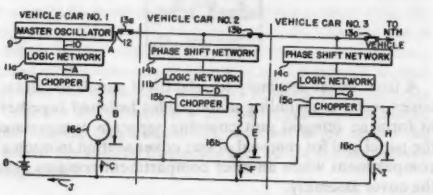
CHOPPER CONTROL APPARATUS HAVING A COMMON CONTROL PATH

Hendrik C. Appelo, Geneva, Switzerland, assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed June 9, 1971, Ser. No. 151,440

Int. Cl. H02p *5/46*

U.S. Cl. 318—52 6 Claims



A vehicle includes a plurality of vehicle cars, one vehicle car of which provides a vehicle control signal for use by itself as well as for transmission over a single signal transmission path to the other vehicle cars. In the other vehicle cars the vehicle control signal is delayed a finite amount of time which is determined by the number of vehicle cars. The resultant vehicle control signal present in each vehicle car is used to control the chopper conduction period for the vehicle car. The control of the respective chopper conduction periods results in a reduction of the ripple current from the power source.

3,707,660

ARRANGEMENT FOR REGULATING THE CURRENT SUPPLIED TO THE OPERATIVE CIRCUIT OF A COMMUTATING MOTOR

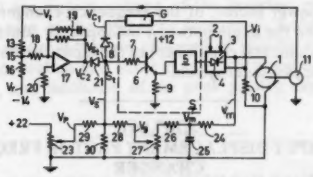
Engbert Bernard Gerard Nijhof, and Wilhelmus Bernardus Rosink, both of Emmasingel, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed March 3, 1970, Ser. No. 16,201

Claims priority, application Netherlands, March 6, 1969, 6903439

Int. Cl. H02p *5/28, 7/36*

U.S. Cl. 318—308 **17 Claims**



A control system for a commutating electric motor includes at least one semiconductor controlled element for controlling the current in the operative circuit of the motor and a control device for adjusting the firing angle thereof. A negative feedback regulating voltage is supplied to the control device which depends upon the current in the operative circuit and/or upon the motor speed. Switching transients in the operative circuit are limited by means of a sum voltage composed of a bias voltage and a positive feedback voltage derived in an integrating positive feedback loop. The positive feedback voltage is determined by the voltage across the operative circuit. The switching transients are primarily determined by the bias voltage and the resistance of the operative circuit.

3,707,661

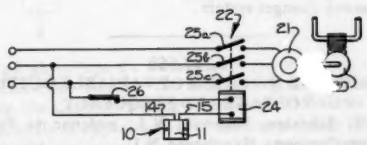
ELECTRICAL DRIVE MOTOR PROTECTIVE MEANS

Ray J. King, Charlotte, N.C., assignor to CMD Electronics, Inc., Charlotte, N.C.

Filed March 22, 1971, Ser. No. 126,602

Int. Cl. H02p *5/16*

U.S. Cl. 318—484 **7 Claims**



An electrical drive motor for the compressor of a vapor compression cycle refrigeration system is protected against failure otherwise possibly occurring due to excessively frequent starting by the combination therewith of a two terminal electrical network which delays energization of the electrical drive motor for a predetermined interval of time.

3,707,662

MACHINE TOOL VELOCITY CONTROL SYSTEM

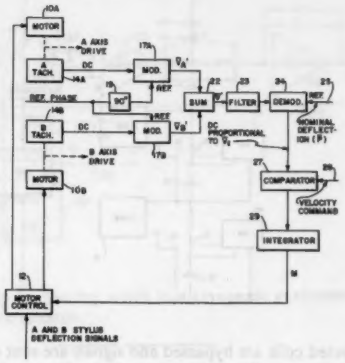
George A. Hoffman, Racine, Wis., assignor to Gettys Manufacturing Company, Incorporated, Racine, Wis.

Filed Aug. 3, 1970, Ser. No. 60,693

Int. Cl. G05b *19/36*

U.S. Cl. 318—578 **16 Claims**

Velocity control means for use in an automatic tracer system in which a stylus is moved relative to a template, comprises a control circuit for maintaining the magnitude of the



velocity component in a direction tangential to the template surface (at the point of stylus contact) equal to a predetermined magnitude.

3,707,663

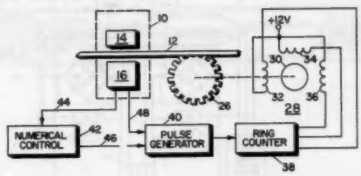
CLOSED LOOP CONTROL FOR STEPPING MOTOR DRIVE

Everett R. Bishop, Waynesboro, Va., assignor to General Electric Company

Filed April 23, 1971, Ser. No. 136,852

Int. Cl. G05b *19/40*

U.S. Cl. 318—685 **10 Claims**



A stepping motor drive for a perforated tape reader. The energization of the stepping motor is controlled by a ring counter driven by a pulse generator. The control loop is closed by a feedback signal indicative of whether the tape sprocket hole is in a read or a non-read position. The generation of a pulse is inhibited unless the tape was driven to a new read position by a previously-generated pulse.

3,707,664

NOVEL BATTERY DISCHARGE SENSOR AND CONTROL

Fred H. Esch, Silver Spring, Md., assignor to Communications Satellite Corporation, Washington, D.C.

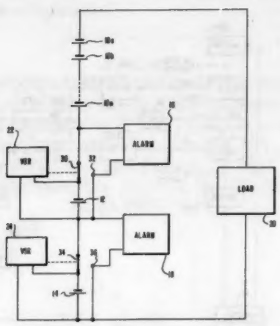
Filed April 6, 1971, Ser. No. 131,610

Int. Cl. H02j *7/00*

U.S. Cl. 320—18 **11 Claims**

In an energy storage device of the type which comprises a plurality of series connected voltage cells such as a series of alkaline battery cells, the discharge of the cells is prevented from reaching a dangerously low level by monitoring the voltage level of selected ones of the cells which have a lower energy capacity than the remaining standard cells in the storage device. The selected cells, having a lower maximum capacity, will reach a detectable degree of discharge first and circuit

means are provided for detecting when the full discharge of these cells is about to be reached. When detection occurs the



selected cells are bypassed and signals are sent out to indicate that the overall energy storage device has reached a low level of charge.

3,707,665

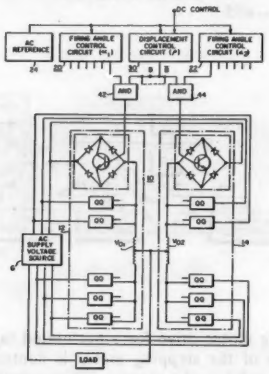
POWER FREQUENCY CHANGER WITH CONTROLLABLE INPUT DISPLACEMENT FACTOR

Laszlo Gyugyi, Penn Hills, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Continuation-in-part of Ser. No. 84,795, Oct. 28, 1970, abandoned. This application Nov. 12, 1971, Ser. No. 198,204

Int. Cl. H02m *5/22*

U.S. Cl. 321—5 **6 Claims**



The invention relates to the operation of a frequency changer system comprised of bilateral switching elements in which the conduction intervals of the bilateral switching elements are shifted with respect to a selected time reference to vary the input displacement factor, or input power factor, of the frequency changer system.

3,707,666

UNITY INPUT DISPLACEMENT FACTOR FREQUENCY CHANGER

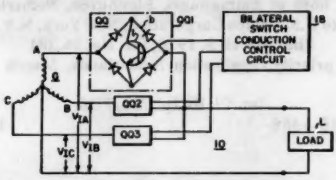
Laszlo Gyugyi, Penn Hills, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Continuation-in-part of Ser. No. 84,796, Oct. 28, 1970. This application Nov. 12, 1971, Ser. No. 198,215

Int. Cl. H02m *5/22*

U.S. Cl. 321—5 **3 Claims**

The invention relates to a frequency changer (or cycloconverter) system employing conduction controlled bilateral switches operating in a controlled switching mode to maintain a unity input displacement factor for the frequency changer system independent of load power factor and output voltage. The input displacement factor, which is often referred to as



the input power factor, of the frequency changer system is defined to be the angle between the input, or source, voltage and the fundamental component of the input current drawn by the frequency changer system.

3,707,667

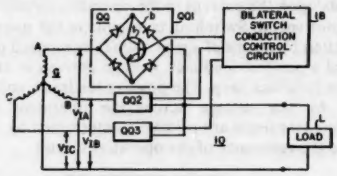
UNITY INPUT DISPLACEMENT FACTOR FREQUENCY CHANGER

Laszlo Gyugyi, Penn Hills, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Continuation-in-part of Ser. No. 84,796, Oct. 28, 1970. This application Nov. 12, 1971, Ser. No. 198,283

Int. Cl. H02m *5/22*

U.S. Cl. 321—5 **5 Claims**



The invention relates to a frequency changer (or cycloconverter) system employing conduction controlled bilateral switches operating in a controlled switching mode to maintain a unity input displacement factor for the frequency changer system independent of load power factor and output voltage. The input displacement factor, which is often referred to as the input power factor, of the frequency changer system is defined to be the angle between the input, or source, voltage and the fundamental component of the input current drawn by the frequency changer system.

3,707,668

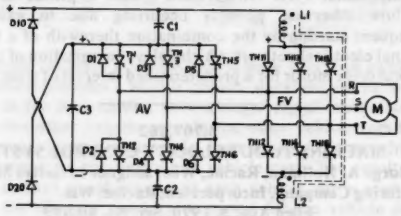
COMPOUND INVERTER OF VARIABLE OUTPUT VOLTAGE AND FREQUENCY

Gerald T. Johnston, Mahwah, N.J., assignor to Precision Products Company, Hawthorne, N.J.

Filed Dec. 16, 1971, Ser. No. 208,563

Int. Cl. H02m *7/48*

U.S. Cl. 321—5 **36 Claims**



Two polyphase thyristor bridges are both directly connected to the polyphase a.c. output terminals of an inverter.

One operates at an adjustable d.c. input voltage that appears across an input storage capacitor, which is in series, at each of its terminals, with one of two pulsing capacitors respectively connecting to the poles of the inverter's d.c. supply. The other bridge has its d.c. input connected to the d.c. supply on each side by coupled inductor windings and serves to transfer energy to the adjustable voltage bridge by charging and discharging the pulsing capacitors, as well as to extinguish the thyristors of the latter bridge when required, and to furnish directly part of the load current. Control circuits include arrangements for comparison of the storage capacitor voltage with a controllable reference voltage in response to which energy transfer pulses alternately charging the pulsing capacitors one way and then the other are drawn from the d.c. supply to control the output voltage of the inverter, preferably as some function of the operating frequency. Refinements are shown to assure adequate charging of pulsing capacitors at high speed, lockup and short circuit tolerance or protection simplicity, and limitation of the peak pulsing capacitor voltage.

3,707,669

METHOD OF REGULATING HIGH VOLTAGE DIRECT CURRENT TRANSMISSION SYSTEM OPERATING WITH SEVERAL CONVERTER STATIONS CONNECTED IN A MULTIPOINT NETWORK

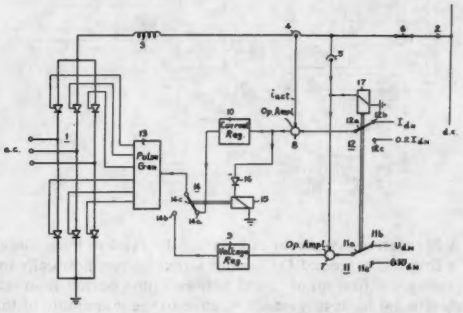
Karl-Werner Kanngiesser, Viernheim, and Hans Peter Lips, Schriesheim, both of Germany, assignors to Aktiengesellschaft Brown, Boveri & Cie, Baden, Switzerland

Continuation-in-part of Ser. No. 51,049, June 30, 1970, abandoned. This application Jan. 27, 1971, Ser. No. 110,005

Claims priority, application Germany, July 4, 1971, P 19 33 943.6

Int. Cl. H02m *1/18*

U.S. Cl. 321—11 **11 Claims**



In a high voltage d-c transmission system having more than two converter stations for establishing a multipoint power supply, the stations working in rectifier and inverter operation respectively at opposite ends of the transmission line are provided with the usual current, voltage and extinction angle regulators which operate, under normal conditions in the system, along a certain characteristic curve. In the event of a short-circuit in the d-c mains, the station regulators are changed over for operation along a different characteristic curve with reduced nominal current and voltage values in order to support the cut-off process of the d-c switches.

3,707,670

VARIABLE LOW RESISTANCE CIRCUIT WITH SUPERCONDUCTING SHUNTS

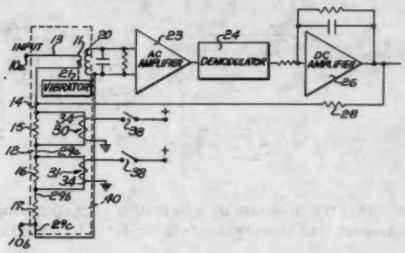
Robert J. Erdman, Twinsburg, Ohio, assignor to Keithley Instruments, Inc., Solon, Ohio

Filed April 1, 1969, Ser. No. 811,895

Int. Cl. H01c *1/00, 7/16*

U.S. Cl. 323—96 **4 Claims**

Low resistance circuit, for use in series with superconducting component, having resistance value changeable between a low resistance and that of a superconductor below its critical temperature T_c. A superconducting switch is rendered non-superconducting by heating, while in a cryogenic environment, with an electric resistor.



ERRATUM

For Class 323—24 see:
Patent No. 3,707,682

3,707,671

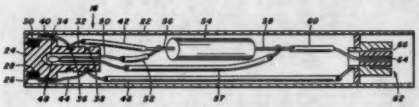
INDUCTIVE VIBRATION PICKUP APPARATUS

Robert S. Morrow, 4148 Rowanne Court, Columbus, Ohio; Lloyd D. Penn, 190 Crestview Drive, Johnstown, Ohio, and Kenneth E. Hays, 397 N. Stygler Road, Gahanna, Ohio

Continuation of Ser. No. 697,109, Jan. 11, 1968, abandoned. This application May 1, 1970, Ser. No. 33,673

Int. Cl. G01r *33/00*

U.S. Cl. 324—34 R **8 Claims**



Electrical sensing apparatus such as proximity switches and vibration pickups of the type in which the distance between an inductor in the tank circuit of an oscillator and a metallic object in the field of the inductor is indicated by the amplitude at the output of the oscillator. The apparatus incorporates means adapted to compensate the output and/or sensitivity of the oscillator for temperature variations in either the inductor or the oscillator circuitry. Temperature compensation is achieved by means of thermistors, one of which is in series with the inductor and the other of which is in the oscillator network.

3,707,672

WEAPON DETECTOR UTILIZING THE PULSED FIELD TECHNIQUE TO DETECT WEAPONS ON THE BASIS OF WEAPONS THICKNESS

Robert C. Miller; Walter J. Carr, Jr., and George T. Mallick, Jr., all of Pittsburgh, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

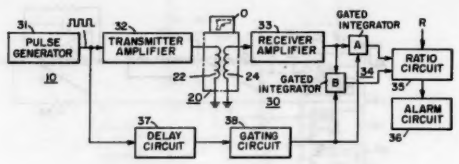
Filed June 2, 1971, Ser. No. 149,226

Int. Cl. G01r *33/00*

U.S. Cl. 324—41 **4 Claims**

This invention is a metal detector which utilizes pulsed field techniques in order to detect the presence of metal objects and to provide discrimination between metal objects based on characteristics such as thickness, size and shape. An object to

be monitored for metal content is subjected to pulsating magnetic fields. The rate of change of the magnetic field occurring



at either the initiation or termination of magnetizing pulses is interpreted to identify the metal object in terms of thickness.

3,707,673

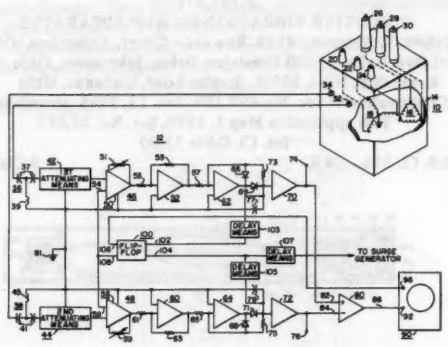
CORONA DISCHARGE DETECTING APPARATUS INCLUDING GATABLE AMPLIFIERS CONTROLLED BY FLIP-FLOP MEANS

William J. Carter, Muncie, Ind., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed March 29, 1971, Ser. No. 128,716

Int. Cl. G01r *31/08, 31/12*

U.S. Cl. 324—52 **5 Claims**



Apparatus for accurately detecting corona discharges occurring within the casing of electrical inductive apparatus, such as transformers and electrical reactors. Mechanical disturbances within the apparatus, initiated by corona discharges, are detected by two spaced mechanical to electrical transducers. The signal from the two transducers are amplified, converted to unidirectional signals of like polarity, and the two signals are subtracted in a difference amplifier to cancel noise common to both signals while amplifying corona responsive portions of the signals.

3,707,674

METHOD AND APPARATUS FOR MEASURING CORONA INCEPTION VOLTAGE ON OVERHEAD CONDUCTORS AND THE LIKE

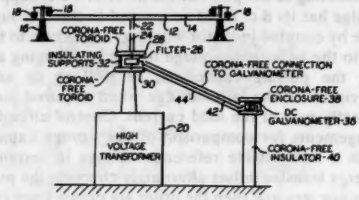
George Bahder, Edison, and Felipe G. Garcia, Scotch Plains, both of N.J., assignors to General Cable Corporation, New York, N.Y.

Filed April 5, 1971, Ser. No. 131,094

Int. Cl. G01r *33/02*

U.S. Cl. 324—72 **12 Claims**

With this invention, corona inception voltage in uninsulated overhead lines is detected by placing a sensitive direct current galvanometer in position to detect the change from negative to positive space charge around the overhead conductor when corona discharge begins. The galvanometer, with low pass filters, is placed in series with the power line, and the low pass



filters prevent the relatively heavy capacitive alternating current from flowing through the direct current galvanometer coil.

3,707,675

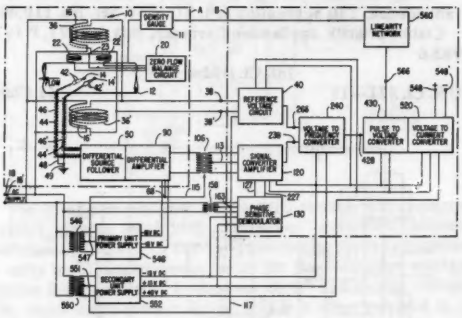
MEASURING SYSTEM FOR COMPARING THE RELATIVE MAGNITUDES OF FIRST AND SECOND D.C. SIGNALS

Roger L. Krechmery, and Lee A. Seabeck, both of Mentor, Ohio, assignors to Bailey Meter Company

Filed Sept. 11, 1970, Ser. No. 71,508

Int. Cl. G01r *7/00*

U.S. Cl. 324—140 D **7 Claims**



A Measuring system for comparing the relative magnitudes of a first and a second D.C. input signal by symmetrically integrating the first input signal between time period intervals proportional to its magnitude relative to the magnitude of the second input signal so that pulses are generated at a frequency which is a multiple of the integrating cycle. The variable frequency pulses are either counted directly or are converted to a frequency variable train of voltage pulses, each of the pulse cycles of the train of pulses having the corresponding periodicity of the variable input frequency and each voltage pulse having a substantially constant pulse width; the train of pulses are used to modulate a voltage source output signal which, when subsequently averaged, provides an output signal that is proportional to the product of the modulated output signal of the voltage source and the input frequency.

3,707,676

SETPOINT AND ACTUAL VALUE INDICATOR

Yves De Bretagne, and Francis Manier, both of Amiens, France, assignors to Honeywell Inc., Minneapolis, Minn.

Filed May 5, 1971, Ser. No. 140,440

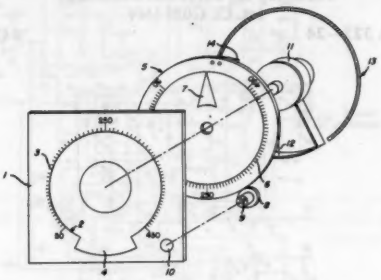
Claims priority, application France, July 6, 1970, 7025004

Int. Cl. G01r *1/08*

U.S. Cl. 324—157 **8 Claims**

Condition controlling apparatus for adjusting the setpoint of and indicating the actual value for a condition, is provided

with a movable scale on the front face of a movable disc, a set-point mark and a stationary scale, identical to the movable scale but in which the direction of increasing values is



reversed, disposed on the front face of a stationary front plate having a window therein for viewing the pointer of a galvanometer and revealing only a limited angular zone on the movable scale.

3,707,677

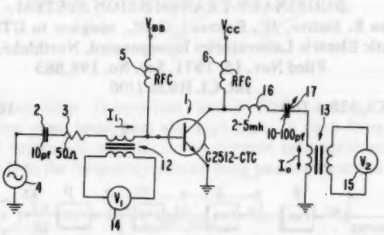
METHOD AND APPARATUS FOR MEASURING R. F. CURRENT GAIN OF A TRANSISTOR

David M. Duncan, San Francisco, Calif., assignor to Communications Transistor Corporation, San Carlos, Calif.

Filed March 8, 1971, Ser. No. 121,909

Int. Cl. G01r *3/22*

U.S. Cl. 324—158 T **6 Claims**



The radio frequency current gain of a high frequency transistor is measured by sensing the radio frequency input and output of the transistor when a variable reactance in the output circuit is tuned to a setting that yields maximum output radio frequency current. The variable reactance in series with the output circuit essentially tunes out the stray capacitance and lead inductances within the transistor package such that the intrinsic current gain of the transistor is measured. The ratio of measured output r.f. current to the measured r.f. input current yields the intrinsic r.f. current gain of the transistor.

3,707,678

DEVICE FOR DETECTING THE INSTANTANEOUS SPEED OF ROTATION OF A MACHINE

Jean Pierre Champagnon, 5, Allee des Cigognes, 77 Avon, France

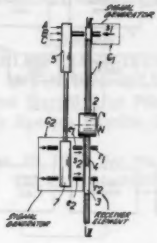
Filed April 28, 1970, Ser. No. 32,711

Claims priority, application France, April 29, 1969, 6913526

Int. Cl. G01p *3/42*

U.S. Cl. 324—160 **4 Claims**

A detector device for detecting the instantaneous speed of rotation of a machine, e.g., a turbomachine, comprising: a disc rotated by the machine; a first signal generator producing a first signal each time said disc occupies a predetermined angular position; a second signal generator receiving the signals coming from the first generator and, each time it receives such a signal, producing a second signal; a timer device inserted between the first and second signal generators and designed to introduce a delay in the transmission of the first signal; and a



device for detecting the angular position occupied, at the instant at which the second signal is emitted, by the disc, said angular position being a function of the speed of rotation of the machine.

3,707,679

AUTOMATIC MOBILE RADIO TELEPHONE SYSTEM

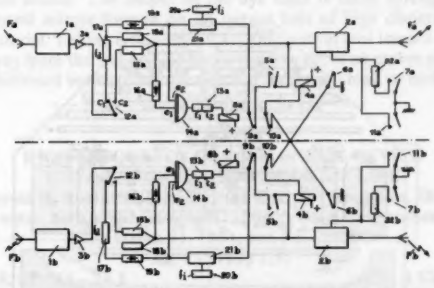
Maurice Georges Marie Bruley, Paris, and Pierre Ferret, Versailles, both of France, assignors to International Standard Electric Corporation, New York, N.Y.

Filed March 31, 1970, Ser. No. 24,116

Claims priority, application France, Dec. 2, 1969, 6910036

Int. Cl. H04b *1/40*

U.S. Cl. 325—5 **6 Claims**



An automatic mobile radio telephone system employs a number of mobile subsets interconnectable through a radio relay station. The station includes two or more duplex channels and marks a selected free channel with a tone f_i and transmits at a reduced power. A calling mobile set sends out a tone f_d and the relay station in response stops sending tone f_i and starts transmitting tone f_d at full power. Free sets in standby condition on f_i catch f_d and wait for the called number. Sets that are not concerned with the call search for another channel marked f_i by the station, since the first said channel has been taken by the call. Signals from a set cannot be received directly by other sets, and secrecy of each communication is insured.

3,707,680

DIGITAL DIFFERENTIAL PULSE CODE MODULATION SYSTEM

O. Gene Gabbard, Germantown, Md., and Pradman Kaul, Berkeley, Calif., assignors to Communication Satellite Corporation

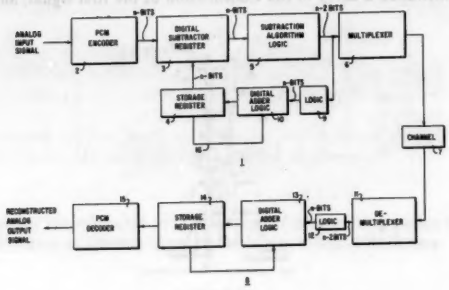
Filed May 20, 1970, Ser. No. 38,951

Int. Cl. H04b *1/00*

U.S. Cl. 325—38 B **14 Claims**

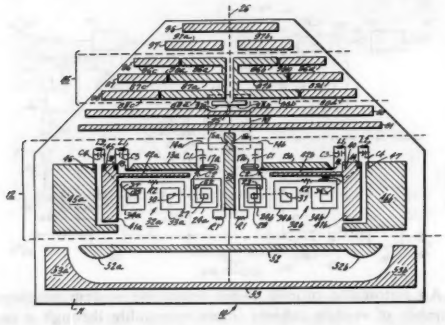
Apparatus and method are disclosed for a differential pulse code modulated system. The system transmits the difference

between a given sample of the input signal and an estimated value of the given sample which is determined from previous



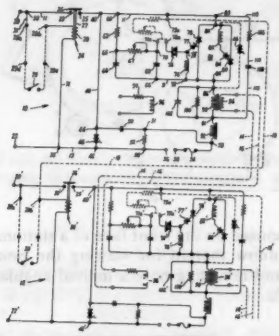
estimated samples. The differential signal is fed back to an all digital loop to provide an estimated sample without undue delay.

3,707,681
MINIATURE TV ANTENNA
Ronald D. Grant, Urbana, Ill., assignor to JFD Electronics Corporation, Brooklyn, N.Y.
Filed March 24, 1970, Ser. No. 22,281
Int. Cl. H04b 1/06
U.S. Cl. 325—368 **46 Claims**



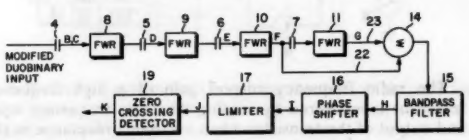
An antenna for TV reception predominantly in the low band and high band VHF ranges having dipoles of significantly reduced physical length as compared with conventional dipoles for reception of signals respectively in the low and high band VHF ranges. Inductive elements are employed to form a portion of the dipole length to permit significant reduction in the physical length of the dipole. The dipoles are electrically isolated from one another by suitable trap circuits to isolate high band VHF operation from low band VHF operation. Lossy components are deliberately added to the dipole section of the antenna to provide significantly improved noise matching and power transfer between antenna and amplifier. The inductive elements further provide good impedance matching between antenna and amplifier to optimize power transfer. The antenna is provided with end loads of the capacitive-type for improving both current magnitude and current distribution across the dipole in both low band and high band VHF operation. Separate amplifier channels are provided for low band and high band VHF signals to improve gain and reduce intermodulation and cross modulation effects, among other. A passive UHF section may be integrated into the array.

3,707,682
SLAVED VARIABLE POWER CONTROL
Robert L. Harris, North Scituate, R.I., assignor to General Electric Company
Filed May 18, 1970, Ser. No. 38,327
Int. Cl. G05f 1/44
U.S. Cl. 323—24 **4 Claims**



A dimming circuit is provided which can be included in an essentially unlimited master and slave bank of dimming units controllable from a single master dimmer. The phase control signal on which dimming control of slaves depends is detected from the rapid rise in turn-on current in the master and in each slave coupled to a dependent slave.

3,707,683
TIMING RECOVERY CIRCUIT FOR USE IN MODIFIED DUOBINARY TRANSMISSION SYSTEM
Berton E. Dotter, Jr., Belmont, Calif., assignor to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.
Filed Nov. 15, 1971, Ser. No. 198,883
Int. Cl. H03b 1/00
U.S. Cl. 328—139 **10 Claims**

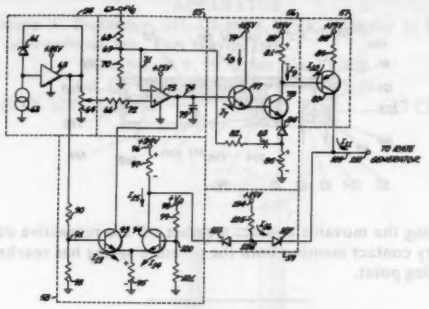


A circuit for producing a timing signal from a modified duobinary data signal. This data signal is capacitively coupled through four full-wave rectifiers that are connected in series. The outputs of the third and fourth rectifiers are DC coupled through an adder to a bandpass filter which passes a timing signal that has a fixed phase relationship with respect to the timing signal that was originally employed to produce the modified duobinary signal. The filtered signal is delayed, squared in a limiter, and applied to a zero crossing detector which produces a train of clock timing pulses.

3,707,684
ERROR AMPLIFIER FOR SWITCHING REGULATOR
John R. Nowell, Phoenix, Ariz., assignor to Honeywell Information Systems, Inc., Waltham, Mass.
Filed Nov. 22, 1971, Ser. No. 200,675
Int. Cl. H03f 1/02
U.S. Cl. 330—9 **8 Claims**

A differential amplifier compares the voltage from a switching regulator with a constant voltage and provides an output current having a value which is determined by the volt-

age from the switching regulator. A feedback circuit limits the rate at which the output current increases when the voltage



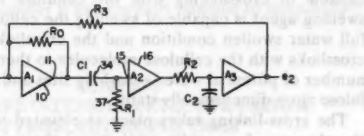
from the switching regulator drops suddenly. Another circuit disables the amplifier and provides a fixed value of output current when the switching regulator is initially turned on.

3,707,685

Q-INVARIANT ACTIVE FILTERS

Philip R. Geffe, Laurel, Md., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed May 21, 1970, Ser. No. 39,277
Int. Cl. H03f *3/04*
U.S. Cl. 330—21 **8 Claims**



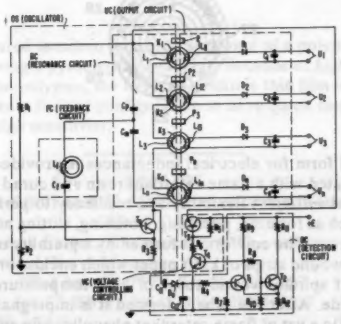
Three-amplifier Q-invariant active filters having three forms; low pass, band pass and high pass. In each form, the element values are preselected to provide zero sensitivity of the pole Q to the frequency-determining passive elements.

3,707,686

NON-CONTACT SWITCHING DEVICE INCLUDING OSCILLATOR CONTROLLED BY MOVABLE MAGNETS

Genzo Uekusa, Takatsuki; Shigeru Tanimura, Kyoto, and Norio Maejima, Kameoka, all of Japan, assignors to Omron Tateisi Electronics Co., Kyoto, Japan

Filed Feb. 23, 1971, Ser. No. 117,913
Claims priority, application Japan, Feb. 23, 1970, 45/15676
Int. Cl. H03b *3/00, 5/12*; H01h *36/00*
U.S. Cl. 331—65 **14 Claims**



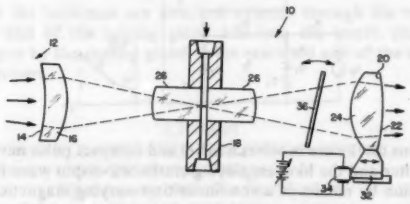
Non-contact switching is attainable with a non-contact switching device which comprises movable permanent magnets, inductors having at least one coil wound around a magnetic core of ferro-magnetic or ferri-magnetic material magnetically coupled with said permanent magnet, and an oscillating circuit including said inductor as its resonance inductor.

3,707,687

DYE LASER TUNABLE BY LONGITUDINAL DISPERSION IN THE DYE CELL

Michael Hercher, and Harold Alan Pike, both of Rochester, N.Y., assignors to Spectra Physics, Inc., Mountain View, Calif.

Filed Dec. 29, 1970, Ser. No. 102,285
Int. Cl. H01s *3/08*
U.S. Cl. 331—94.5 **2 Claims**



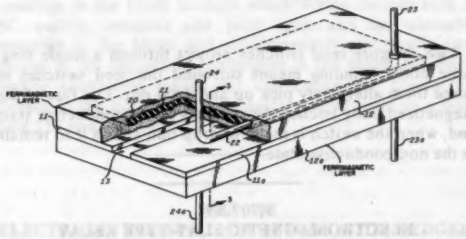
A single mirror serves both as the output mirror for the pumping gas laser and the high reflectance mirror for the dye laser. THe mirror is formed on one surface of a lens having a low dispersion characteristic. The dye cell is positioned at the focus of the lens on the opposite side of the lens from the common mirror. The output of the dye laser is taken through a second mirror formed on an output lens of high dispersion material. Tuning is done by moving the output lens toward and away from the dye cell, or by varying the tilt of an etalon plate positioned between the dye cell and the output lens, or both.

3,707,688

HIGH FREQUENCY GYROMAGNETIC DEVICE EMPLOYING SLOT TRANSMISSION LINE

Gerald H. Robinson, Dunedin, and Harry F. Strenglein, Clearwater, both of Fla., assignors to Sperry Rand Corporation

Filed March 31, 1971, Ser. No. 129,749
Int. Cl. H01p *1/32*
U.S. Cl. 333—24.1 **1 Claim**

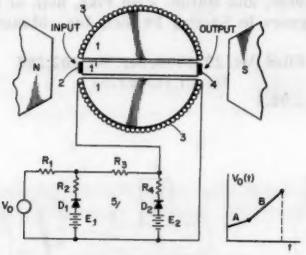


A high frequency gyromagnetic electromagnetic wave transmission device has a symmetric structure including planar high frequency energy conductors defining a wave guiding slot, the conductors being based on a dielectric substrate and covered by a similar superstrate, in which the dielectric strata are formed with gyromagnetic toroids which may be excited to produce static magnetic bias fields for the control of the velocity of propagation of high frequency energy along the transmission device.

3,707,689
ELECTRICAL SIGNAL PROCESSING METHOD AND APPARATUS

Frederic R. Morgenthaler, Winchester, Mass., assignor to Chu Associates, Inc., Littleton, Mass.

Filed March 26, 1970, Ser. No. 22,866
Int. Cl. H03h *7/30, 9/30*
U.S. Cl. 333—30 R **13 Claims**

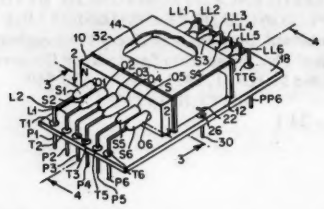


This disclosure involves a novel and compact pulse network or filter and the like, employing elastic wave-spin wave transduction by means of a non-linear time-varying magnetic bias field, providing increased power handling capability and greater compression ratios than present-day filters, and, in addition, variable broad bandwidth adjustment.

3,707,690
REED SWITCH APPARATUS

Michael Sakatos, Union, N.J., assignor to Sigma Instruments, Inc., Braintree, Mass.

Filed March 29, 1971, Ser. No. 128,796
Int. Cl. H01h *51/22, 51/28*
U.S. Cl. 335—153 **18 Claims**



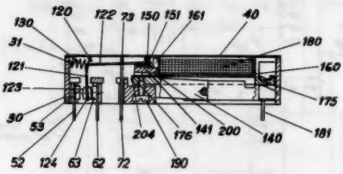
Two or more reed switches project through a single magnetic body. Winding means surround the reed switches to make them alternately pick up and drop out. The flux of the magnetized body latches the switches in the conductive state and, when the switch is made to drop out, allows it to remain in the non-conductive state.

3,707,691
ELECTROMAGNETIC FLAT-TYPE RELAY

Werner Minks, Nurnberg, Germany, assignor to International Standard Electric Corporation, New York, N.Y.

Filed June 2, 1971, Ser. No. 149,180
Claims priority, application Germany, June 3, 1970, P 20 27 330.7
Int. Cl. H01h *3/46*
U.S. Cl. 335—192 **17 Claims**

An electromagnetic flat-type relay with a pressure spring permanently biased engages a slewably supported tilting member carrying the movable contact member, exerting opposite torques thereupon in both the normal and the operating position of the magnet armature. In order to avoid a sticking of the contacts said magnet armature merely performs the task



of lifting the movable contact member off the respective stationary contact member until the pressure spring has reached its tilting point.

3,707,692
METHOD OF TREATING CELLULOSIC MATERIAL TO IMPROVE THE USEFULNESS THEREOF AS AN INSULATOR IN ELECTRICAL APPARATUS

William R. Reeder, South Milwaukee, and Fred S. Sadler, Racine, both of Wis., assignors to McGraw-Edison Company, Milwaukee, Wis.

Filed March 10, 1969, Ser. No. 805,809
Int. Cl. H01f *27/32, 27/00;* **D06m** *15/54*
U.S. Cl. 336—94 **4 Claims**

A method of increasing the dimensional stability of cellulosic material by impregnating the cellulose with a composition including a cellulose swelling agent and a compound capable of crosslinking with the cellulose molecules. The swelling agent is capable of swelling the cellulose beyond its full water swollen condition and the crosslinking compound crosslinks with the cellulose molecules to thereby reduce the number of potential water absorbing sites and render the cellulose more dimensionally stable.

The cross-linking takes place at elevated temperatures in the absence of an acidic catalyst and the cross-linked cellulosic materials are useful as insulators in electrical apparatus. Aminoplasts may be used as cross-linkers and, among others, nitrogen containing compounds such as dimethyl formamide and various amines may be used as swelling agents.

3,707,693
VARIABLE INDUCTOR AND METHOD

Richard L. Hatton, North Barrington, Ill., assignor to Precision Paper Tube Company, Wheeling, Ill.

Filed April 19, 1971, Ser. No. 135,015
Int. Cl. H01f *21/06*
U.S. Cl. 336—136 **17 Claims**

A coil form for electrical inductances is provided which is impregnated with a flame-retardant resin and cured but which maintains sufficient flexibility and resiliency to permit operations such as forming, punching, notching, slitting and the like after curing. The coil form is formed by a plurality of layers of spirally wound strips of kraft paper which enclose one or more layers of spirally wound strips of high temperature resistant polyamide. After the tube is formed it is impregnated by immersing in a vat of flame-retardant phenolic resin and cured.

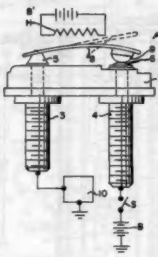
Thereafter a coil winding is placed on the tube. A core is placed within the tube to form a variable inductor.

3,707,694

THERMALLY SENSITIVE CIRCUIT CONTROL APPARATUS

Gideon A. DuRocher, Mt. Clemens, Mich., assignor to Essex International, Inc., Fort Wayne, Ind.

Filed March 9, 1970, Ser. No. 17,420
Int. Cl. H01h *37/46*, *61/00*; G01k *5/48*
U.S. Cl. 337—139 17 Claims



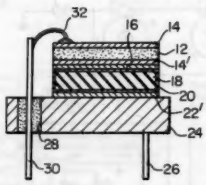
Circuit control apparatus responsive to temperature variations comprises an electrical conductor having an initial configuration and composed of a homogeneous nickel-titanium alloy in such proportions that its shape changes to a different, predetermined configuration in response to its temperature reaching a predetermined, critical temperature. Until the temperature of the conductive member reaches its critical temperature, the member is substantially immune to temperature variations.

3,707,695

INFRARED INTENSITY DETECTOR USING A PYROELECTRIC POLYMER

Eiso Yamaka, Osaka, Japan, assignor to Matsushita Electric Industrial Company, Limited, Osaka, Japan

Filed Oct. 19, 1971, Ser. No. 190,498
Claims priority, application Japan, Oct. 20, 1970, 45/92962; Oct. 20, 1970, 45/92963
Int. Cl. H01c *7/08*
U.S. Cl. 338—18 5 Claims



An infrared sensitive thin film composed of a polymer compound having a pyroelectric property. Because of high formability of the polymer, the infrared sensitive thin film is readily formed into a desired configuration to have quick responsiveness and high sensitivity.

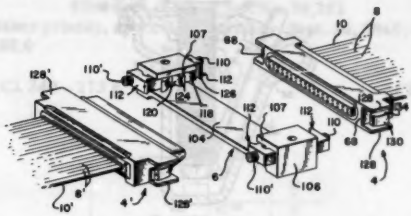
3,707,696

MULTI-CONTACT ELECTRICAL CONNECTOR FOR FLAT CABLE

Clyde Thomas Carter, Mechanicsburg, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Filed Jan. 11, 1971, Ser. No. 105,207
Int. Cl. H01r *13/54*, *13/58*; H05k *1/07*
U.S. Cl. 339—17 F 9 Claims

Multi-contact electrical connector for flat cable comprises two matable connector parts. Each connector part is made up of an outer metallic shell, a central insert containing contact terminals, and a sealing gland surrounding the insert and disposed against the internal walls of the shell. The cable to



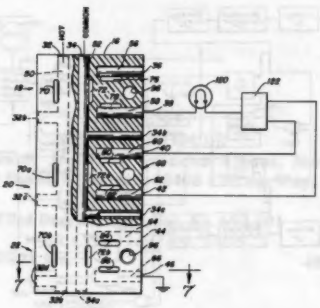
which the terminals are attached extends through the rearward end of the sealing gland and into the insert, and is clamped by the sealing gland at the rearward end of the connector part.

3,707,697

INTERCHANGEABLE ELECTRICAL DEVICE

John Izumi, 105 E. Ohio Street, Chicago, Ill.

Filed June 9, 1971, Ser. No. 151,267
Int. Cl. H01r *3/06*
U.S. Cl. 339—14 R 5 Claims



An electrical connecting and mounting frame for use in standard 115 AC electrical wiring systems, the frame containing a series of conductors disposed within an insulating block, openings in the block through which wiring devices such as AC outlets, switches and pilot lights can be releasably mounted to the block and simultaneously electrically connected to the respective conductors in the block, the block further containing means for connecting the conductors therein to the hot, neutral and earth ground wires in a standard 115 volts AC supply.

3,707,698

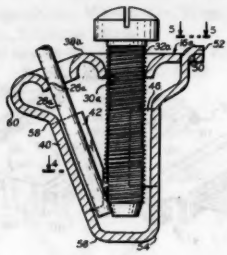
ELECTRICAL TERMINAL STRUCTURE WITH WEDGED CONDUCTOR

Daniel E. Robinson, Metuchen, and Solomon Rubinstein, Fanwood, both of N.J., assignors to General Cable Corporation, New York, N.Y.

Filed April 8, 1971, Ser. No. 132,295
Int. Cl. H01r *9/00*
U.S. Cl. 339—198 R 14 Claims

A terminating structure in which a tight mechanical grip on a conductor is achieved by wedging the conductor in a hole which is at a slight angle to the vertical tapped hole for a set screw. The screw may be self tapping. The holes are

preferably in the front of the terminating structure and in a position where the conductors can be inserted in a straight or



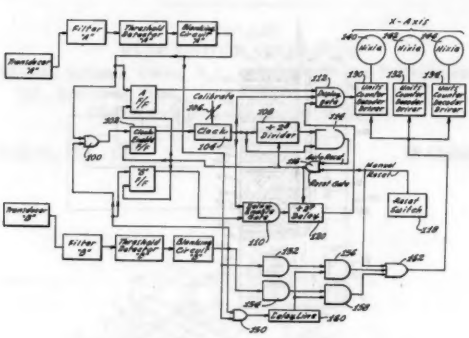
almost straight position without having to bend the conductor. The structure can be fabricated from a stamped blank of metal.

3,707,699

REMOTE SCORING SYSTEM FOR BOMBING OR ROCKET RANGE

Clifford Sanctuary, Palos Verdes Estates, Calif., assignor to Del Mar Engineering Laboratories, Los Angeles, Calif.

Filed Aug. 7, 1970, Ser. No. 62,065
Int. Cl. G01s *5/18*
U.S. Cl. 340—16 M **5 Claims**



An improved scoring system is provided for use in conjunction with land or water ordnance ranges for training military personnel. The system to be described utilizes two pairs of pressure transducers positioned at right angles to one another around the perimeter of the target area. The differential time of arrival of seismic pressure waves at the transducers is sensed and data is made available at a remote read-out station. The resulting data may be presented on two electrical displays connected to corresponding electronic counters. The resulting data may be plotted on a plotting board, for example, to provide polar coordinates representative of range and bearing from an aiming point. Alternately, the polar coordinates may be derived by means of an appropriate electronic digital computer.

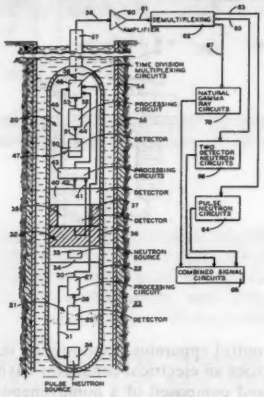
3,707,700

TELEMETRY SYSTEM INCORPORATING SYNCHROMIZATION OF RECEIVER WITH TRANSMITTER

Guy Lafont, Paris, France, assignor to Schlumberger Technology Corporation, New York, N.Y.

Filed Aug. 21, 1969, Ser. No. 851,868
Int. Cl. G01v *1/16*
U.S. Cl. 340—18 **10 Claims**

An embodiment of the invention transmits signals from a borehole logging sonde through an armored cable to the earth's surface. In order to transmit different logging information signals through the cable, a time division multiplexing system is used. Individual time slots in a repeated sequence are each allocated to respective information signals. Although an information pulse will not appear in each of these time slots, one time slot is set aside for a sync pulse that does recur in each sequence. On the earth's surface, a demultiplexing circuit synchronizes itself with the downhole multiplexer through



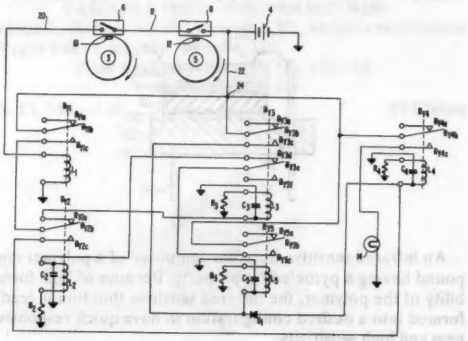
the assumption that any first-received pulse is the sync pulse. In response to this pulse, the demultiplexer segregates and distributes the succeeding time slot information in accordance with a predetermined program. The demultiplexer, on termination of the first sequence, once more reproduces the signal distribution cycle in response to the very next-received pulse. Because the sync pulse is the only pulse that is certain to occur in every sequence, the demultiplexer quickly locks into phase with the downhole multiplexer.

3,707,701

DEVICE FOR MEASURING CHANGES IN RADIUS OF RUBBER TIRED VEHICLE WHEELS

Wallace I. Neu, 1601 N. 5th Street, Alpine, Tex.

Filed Feb. 18, 1971, Ser. No. 116,353
Int. Cl. B60c *23/06*
U.S. Cl. 340—58 **8 Claims**

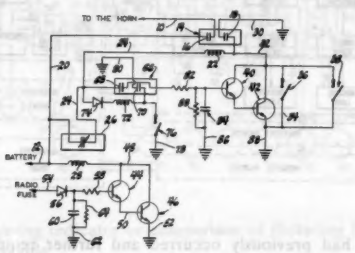


A system for detecting a change in the effective radii of rubber tired wheels mounted on vehicles with the vehicle in motion. The number of complete rotations made by a monitored wheel is detected and compared with a reference to determine the time interval defined as the time required for the monitored wheel to move from an in phase condition, out of phase, and back into phase again with respect to the reference. A wheel is in phase with its reference when both simultaneously produce a pulse signal. When this time period is less than a predetermined time interval, a warning signal is sent to the vehicle operator.

3,707,702
ANTITHEFT DEVICE FOR VEHICLES

Andrew J. Plattner, Detroit, Mich., assignor to Kem Krest Products Company, Farmington, Mich.

Filed Dec. 14, 1970, Ser. No. 97,679
Int. Cl. B60r 25/04
U.S. Cl. 340—64 5 Claims

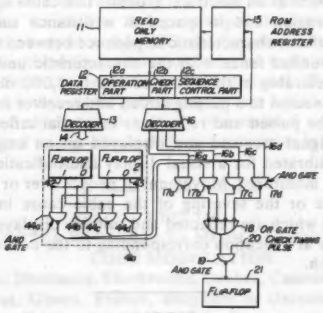


An electrical alarm system for use with a vehicle comprising circuitry that activates an alarm, such as the vehicle horn when the vehicle door is opened or when the vehicle engine hood or vehicle rear deck lid is opened, including a time delay circuit for keeping the horn in an open circuit condition during a predetermined time interval following the opening of the door or following the opening of the hood or rear deck lid, and a de-activating circuit connected to the vehicle engine ignition switch for disabling the system.

3,707,703
MICROPROGRAM-CONTROLLED DATA PROCESSING SYSTEM CAPABLE OF CHECKING INTERNAL CONDITION THEREOF

Toshinori Sakai, Tokyo, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed Nov. 17, 1970, Ser. No. 90,391
Claims priority, application Japan, Nov. 19, 1969, 44/92167
Int. Cl. G06f 9/12
U.S. Cl. 340—172.5 11 Claims

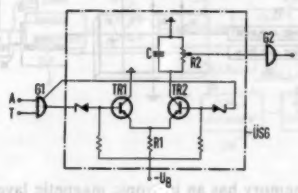


A microprogrammed data processing system which makes certain that the sequence control of instructions is being performed correctly and that the data processing system has predetermined internal conditions needed to carry out the instructions.

3,707,704
SELECTIVE CIRCUIT FOR A DATA STORER WITH OPTIONAL ACCESS

Hermann Kadow, Munich, Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Germany

Filed Sept. 9, 1970, Ser. No. 70,752
Claims priority, application Germany, Sept. 30, 1969, P 19 49 388.0
Int. Cl. G11c 11/24
U.S. Cl. 340—173 R 7 Claims

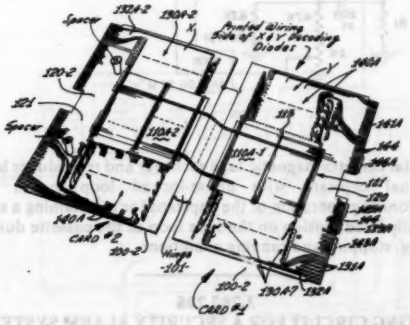


A selective circuit with optional access is provided with means for preventing overload of the circuit in case of repetitive or continuous call by the same address. The prevention of overload is effected by a technique which provides a simulation of the thermal state of the circuit. Also, a control unit is provided to limit the call succession of frequently used addresses.

3,707,705
MEMORY MODULE

Jones V. Howell, Jr., 9201 Vanalden Avenue, Northridge, Calif., and David W. Mayne, 18408 Clifftop Way, Malibu, Calif.

Filed Dec. 20, 1967, Ser. No. 692,101
Int. Cl. G11c 11/06, 5/04
U.S. Cl. 340—174 MA 40 Claims

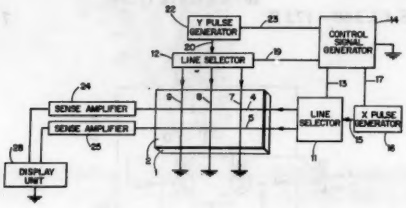


A core memory unit is disclosed using double card modules with each module having an X wire system common to both cards, and further having several Y wire systems, one per bit position (bit plane). The module holds decoders for X and Y wire systems, driven by a predecoder system common to all modules and external thereto. The Y wire systems operate with anticoincidence, the sense wire system is a double wire system, each wire being rectangularly looped as threaded through half of the cores of the bit locations of each bit position to suppress noise.

3,707,706
MULTIPLE STATE MEMORY

John H. Kefalas, North Billerica, Mass., assignor to Honeywell Information Systems, Inc., Waltham, Mass.

Filed Nov. 4, 1970, Ser. No. 86,918
Int. Cl. G11c 11/10, 11/14
U.S. Cl. 340—174 CB 6 Claims

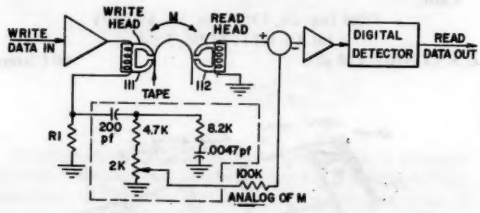


A thin film memory has an isotropic magnetic layer and a plurality of conductors arranged in columns and rows disposed over the magnetic layer. The points of intersection of the column and row conductors define storage locations within the magnetic layer which are capable of being assigned one of several storage states.

3,707,707
DIGITAL CASSETTE MAGNETIC TAPE RECORDER AND REPRODUCER

Dale A. Spencer, and William M. Barton, Jr., both of San Diego, Calif., assignors to Cipher Data Products, Inc., San Diego, Calif.

Filed Nov. 12, 1970, Ser. No. 88,884
Int. Cl. G11b 5/44; B65h 17/42, 23/08
U.S. Cl. 340—174.1 B 24 Claims



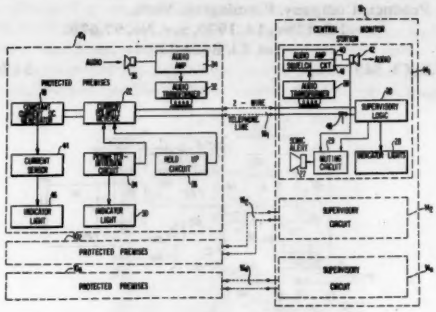
Digital cassette magnetic tape recorder and reproducer having dual capstans with phase-locked loop means for synchronizing operation of the capstans for maintaining a substantially fixed tension on the tape loop of the cassette during starting, stopping and running conditions.

3,707,708
MUTING CIRCUIT FOR A SECURITY ALARM SYSTEM PROVIDING A SONIC ALERT

Carlo Dan, Bethesda, Md., assignor to Multra-Guard, Inc., Rockville, Md.

Filed Dec. 16, 1970, Ser. No. 98,588
Int. Cl. G08b 7/06, 13/22
U.S. Cl. 340—213.2 14 Claims

An electronic circuit enabling an operator at a central station to mute a sonic alarm device energized in the event of an emergency condition occurring at a remote station under surveillance at any time from the moment the alarm is heard and identified at the central station to the time when a normal condition is restored. The circuit additionally includes means which reenergizes the sonic device automatically as soon as the normal condition is restored to remind the operator that



muting had previously occurred and further requiring the operator to manually reset the circuit to deactivate the reenergized sonic alarm device.

3,707,709
DETECTION SYSTEM

David Wolf, 67 Bracket Road, Newton, Mass., and Edward Blank, 229 Billings Street, Sharon, Mass.

Filed Sept. 24, 1970, Ser. No. 74,957
Int. Cl. G08b 13/26
U.S. Cl. 340—258 R 5 Claims

A detection system designed primarily for detecting intruders of fenced-in areas such as yards, compounds, factory areas and the like. In the preferred embodiment, a chain-link metal fence extends about the area being monitored. A conductive cable extends parallel to the fence either on its inner or outer side. The cable is spaced uniformly from the fence which functions as an electrical ground. The cable is selected with a dimension and is spaced at a distance such as to establish uniform characteristic impedance between the cable and the grounded fence with the characteristic uniform impedance preferably in the order of 100 to 1,000 ohms. The cable is connected to a pulsing circuit and receiver so that the cable may be pulsed and reflections or partial reflections of the pulse signal received and displayed on an oscilloscope which is calibrated for a visual display and indication of the cable being monitored. Movement of people over or adjacent to the cable or the severing of the cable cause immediate mismatches which are reflected and suitably displayed on the oscilloscope at a location corresponding to the occurrence of the mismatch.

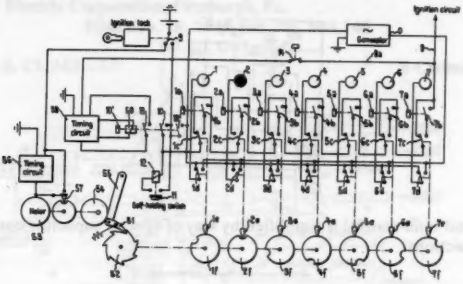
3,707,710
DEVICE FOR TESTING THE VIGILANCE OF A PERSON

Karl Adler, Grenchen, and Wolfgang Karger, Bochum, both of Germany, assignors to Bivistor S.A., Geneva, Switzerland

Continuation-in-part of Ser. No. 776,702, Nov. 18, 1968, abandoned. This application Dec. 15, 1970, Ser. No. 98,330
Int. Cl. B60k 27/08
U.S. Cl. 340—279 28 Claims

A device for testing the vigilance of a person based on his

flicker fusion threshold, having at least two luminous indicators of which at least one is flickering, whereby selection of



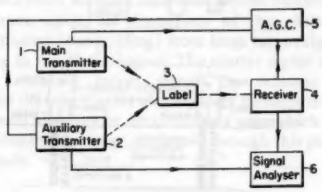
the flickering indicator or comparison of flickering frequencies is possible.

3,707,711

ELECTRONIC SURVEILLANCE SYSTEM

Peter Harold Cole, 3 Strangways Terrace, North Adelaide, and Richard Vaughn, 6 Taylor Street, Maroubra, New South Wales, both of Australia

Filed April 2, 1970, Ser. No. 25,232
Int. Cl. G08b *21/00*
U.S. Cl. 340—280 **16 Claims**



An electronic surveillance system in which a passive label is attached to goods to be placed under surveillance and the label is interrogated by electromagnetic signals from a transmitter, the label acting to transmit a reply signal to a receiver which gives a characteristic response in the presence of a label, the transmitter being arranged to transmit signals, preferably two, at widely different frequencies and the label acts to mix these frequencies to produce a reply signal which is distinct from the original transmitted signal. The receiver is provided with a signal processing system which analyses and compares characteristics of the transmitted signal and the reply signal and produces different responses in the presence or absence of a label.

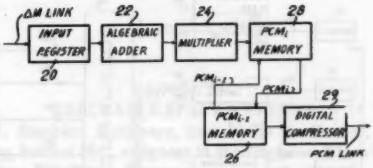
3,707,712

CONVERTER FROM DELTA MODULATION TO PULSE CODE MODULATION

Pierre A. Deschenes, Sherbrooke, Quebec, Canada, and Michel Villeret, Gisors, France, assignors to Universite de Sherbrooke, Sherbrooke, Quebec, Canada

Filed June 10, 1970, Ser. No. 44,994
Int. Cl. H03k *11/00, 13/00, 13/24*
U.S. Cl. 340—347 DD **10 Claims**

A system for the conversion of a delta modulation (ΔM) signal into a pulse code modulation (PCM) signal and vice versa. The system for the conversion of a ΔM modulation signal into a PCM modulation signal comprises: register means for storing an input signal consisting of *n* binary digits generated by a ΔM modulator during a time period corresponding to a normal PCM modulation sampling period T_s, each binary digit representing a positive or negative ΔM modulation quantization step of a quantized signal; means for effecting the algebraic sum of the positive and negative quantization steps to obtain the increase or decrease of the quantized signal during the sampling period; means for multiplying the algebraic sum by a constant K representing the ratio of the



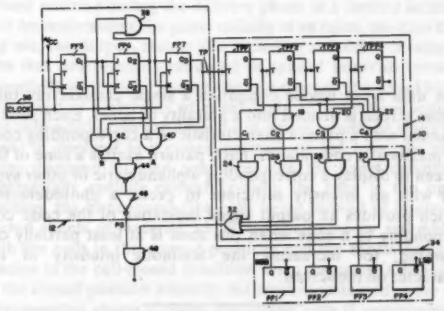
value of a ΔM modulation quantization step over the value of a PCM modulation quantization step to obtain a binary signal representing the increase or decrease of the quantized signal in pulse code modulation quantization steps; and means for adding the binary signal obtained by the above multiplication to the binary signal obtained during the sampling period T_{i-1} to obtain a binary output signal corresponding to the required pulse code modulation signal.

3,707,713

HIGH RESOLUTION PULSE RATE MODULATED DIGITAL-TO-ANALOG CONVERTER SYSTEM

Richard A. Diaz, Pittsburgh, and Andras I. Szabo, Export, both of Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Oct. 13, 1970, Ser. No. 80,358
Int. Cl. H03k *13/02*
U.S. Cl. 340—347 DA **4 Claims**

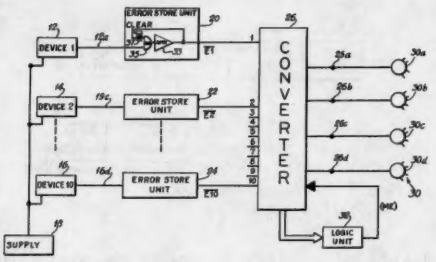


This disclosure relates to a pulse rate modulated digital-to-analog converter system which translates the digital information into a train of identical pulses, with the pulse rate proportional to the digital data. The pulse train produced by the encoder drives an analog switch, which in cooperation with a filtering analog circuit, converts the pulse train to an analogous DC voltage.

3,707,714
MULTIPLE ERROR DETECTOR

Christopher Plumley, Middlesex, Mass., assignor to Honeywell Inc., Minneapolis, Mich.

Continuation of Ser. No. 771,186, Oct. 28, 1969, abandoned.
This application Jan. 8, 1971, Ser. No. 105,127
Int. Cl. H04l 3/00
U.S. Cl. 340—347 DD 8 Claims



Apparatus for producing a coded indication of which single incoming line carries an error signal responds to the receipt of plural error signals concurrently on different lines by producing an unambiguous multiple error signal.

3,707,715
DATA INPUT DEVICE

Pier Giorgio Perotto, Torino, Italy, assignor to Ing. C. Olivetti & C.,S.p.A., Ivria(Torino), Italy

Filed Jan. 19, 1971, Ser. No. 107,718
Claims priority, application Italy, Jan. 21, 1970, 67158 A/70
Int. Cl. G08b 5/36
U.S. Cl. 340—365 P 10 Claims

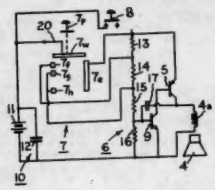
A data input device comprises a single cathode ray tube whose screen is divided into a plurality of zones. Each zone is scanned with a pattern characteristic of a corresponding code by means of a code matrix. Each pattern excites a zone of the screen to display a corresponding alphanumeric or other symbol with an intensity sufficient to excite a photodetector, which provides an output signal indicative of the code corresponding to a zone when this zone is at least partially obscurated, for increasing the luminous intensity of the character on the screen.

3,707,716
MULTI-TONE PUSH BUTTON CONTROLLED ELECTRONIC HORN

Norman S. Goralnick, 233 Worthen Road, Lexington, Mass.

Filed Sept. 23, 1970, Ser. No. 74,788
Int. Cl. G08b 3/10
U.S. Cl. 340—384 E 3 Claims

Transistorized electronic circuitry for producing audio-frequency output signals is manually switched to vary circuit constants and effect controlled multi-tone outputs in desired automatic dequence. Battery voltage variations are avoided

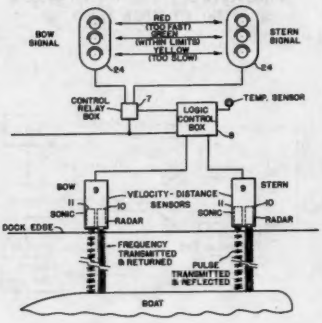


and tone control is simplified by way of special capacitor connections.

3,707,717
BOAT BERTHING MONITOR INCORPORATING SONAR AND DOPPLER RADAR TECHNIQUES

Klaus H. Frielinghaus, Rochester, N.Y., assignor to General Signal Corporation, Rochester, N.Y.

Filed June 25, 1971, Ser. No. 156,678
Int. Cl. G01s 9/02; C01s 9/68
U.S. Cl. 343—6 R 8 Claims



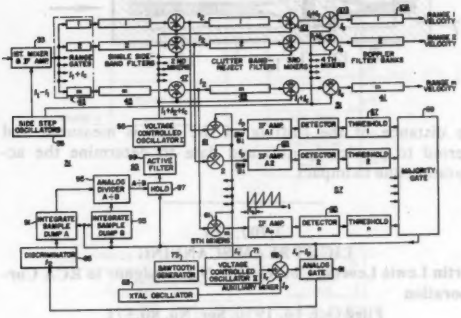
A system has been provided for generating correction command signals relative to the berthing velocity profile of a vehicle in approach of a docking position. A doppler radar system including a radar transceiver projects signals between the docking position and the vehicle and respondingly generates doppler shift frequency signals indicative of the velocity of the vehicle and the relative displacement thereof. A radar counter having preset initial counts stored therein indicative of anticipated initial berthing conditions, responds to the frequency shift signals by counting down from the initial counts in accordance with the doppler shift. Means is included for updating the radar counter in accordance with actual conditions and includes a sonic detector which periodically projects sonic signals between the vehicle and the docking position and respondingly generates corrected count signals in accordance with the reflected sonic energy, indicative of actual distance of the vehicle to the docking position. Means is utilized which periodically transfers the corrected count signals to the radar counter, correcting for errors between actual nd preset initial conditions.

A velocity profile generator responds to the radar counter output and generates a programmed desired berthing velocity profile which a comparator responds to the velocity profile generator and the counter for generating command signals indicative of any discrepancy between the actual and desired vehicle berthing profile.

3,707,718
RADAR SYSTEM

Stephen A. Ames, Owing Mills, Md., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Feb. 18, 1969, Ser. No. 800,140
Int. Cl. G01s 9/42
U.S. Cl. 343—7.7 **6 Claims**

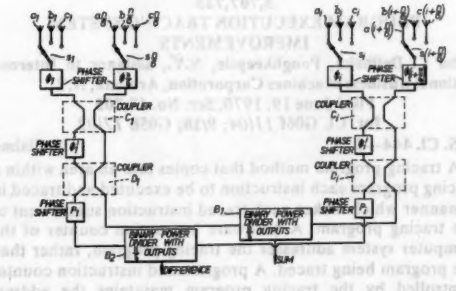


There is disclosed a pulse-doppler, moving-target, airborne, radar with a plurality of range-gating channels and a novel clutter tracker for suppressing, from the intelligence correlated to obtain range and velocity, the clutter reflected from ground. The clutter is suppressed by filters and the frequency of the clutter is maintained within the notch of the filters by an AFC. The mixer of this AFC which sets this notch frequency is driven from an oscillator whose frequency is set in dependence upon the frequency of the clutter signal without confusion (centroiding) from large target signals near in frequency to the clutter signal. The clutter signal is isolated from the confusing target signals by reliance on the phenomenon that the clutter alone passes through most of the range channels and may be detected by a gate which responds to the simultaneous passage of signals through this plurality of range channels.

3,707,719
SCANNING AERIAL SYSTEMS AND ASSOCIATED ARRANGEMENTS THEREFOR

John Richard Mark, Essex, England, assignor to The Marconi Company Limited, London, England

Filed April 9, 1971, Ser. No. 132,765
Claims priority, application Great Britain, April 18, 1970, 18,642/70
Int. Cl. H01q 3/26
U.S. Cl. 343—100 SA **7 Claims**

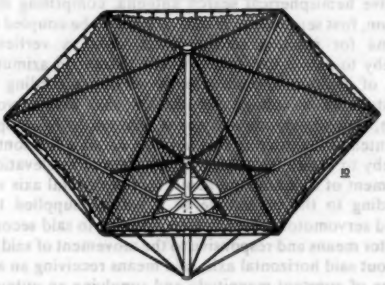


An electronic scanning aerial system and associated feeder arrangement has at least one circular aerial array. Elements of the array are divided into sets and units, each set comprising the same number of adjacent equally spaced elements and each unit comprising a number of different corresponding aerial elements, at least one in each set. A power dividing system provides power to different combinations of aerial elements, the combinations depending upon the general direction of radiation. The power dividing system includes a four port coupler, the ports remote from the aerial units being connected to two binary branching arrangements whereby sum signals are produced at one of the binary branching arrangements and difference radiation pattern signals at the other binary branching arrangement.

3,707,720
ERECTABLE SPACE ANTENNA

John H. Staehlin, Baltimore, and Philip S. Hacker, Silver Spring, both of Md., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Oct. 2, 1970, Ser. No. 77,552
Int. Cl. H01g 15/20
U.S. Cl. 343—755 **8 Claims**



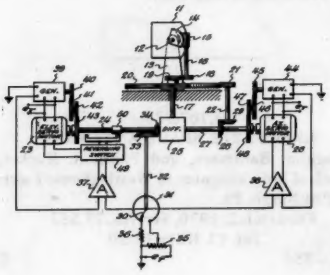
An umbrella type antenna for delivery and use in space which includes an elongated tube and a cellular panel extending substantially radially of one end of the tube; the panel having support means for holding the panel in a collapsed or closed position during the delivery phase to a desired location and for maintaining the panel radially in an open, position during use, the support means also including a number of support ribs that are pivotally mounted at spaced intervals circumferentially of the tube and at one end thereof; the panel being composed of a plurality of expandable adjacent honeycomb-like cells which cells are disposed in closed condition when the panel is disposed in a closed position on the tube, the cells being disposed in open condition with the panel extending substantially radially outwardly from the tube in the open position, the honeycomb-like cells being formed of interconnected sheets of material which are preliminarily assembled with the cells in the opened positions and the sheets being in tension in the cell-closed condition when the panel is disposed in the closed position whereby the tension sustained in the interconnected sheets forming the closed cells if unrestrained, will cause the panel and ribs to expand from the closed position to the open position, means for releasably holding the ribs and panel in the closed position, each cell containing means for reflecting electromagnetic waves to a focus point on the tubular member, electromagnetic wave-receiving means on the tubular member at the focus point, the whole being coordinated so that the tension-sustained sheets forming the closed cells cause the panel and ribs to expand from the closed position to the open position upon release of the means for holding the ribs and panel in the closed position.

3,707,721

SERVO CONTROL SYSTEM

Earl J. McCartney, Rockville Center, N.Y., assignor to The Sperry Rand Corp., Great Neck, N.Y.

Filed Oct. 5, 1954, Ser. No. 460,295
Int. Cl. H01q 3/10
U.S. Cl. 343—759 12 Claims



1. A servo system for controlling the scanning speed of a directive hemispherical search antenna, comprising in combination, first servomotor means adapted to be coupled to said antenna for rotating said antenna about a vertical axis whereby to rotate the directive axis thereof in azimuth, the speed of rotation of said antenna varying according to the magnitude of a voltage supplied to said first servomotor means, second servomotor means adapted to be coupled to said antenna for rotating said antenna about a horizontal axis whereby to rotate the directive axis thereof in elevation; the movement of said antenna about said horizontal axis varying according to the magnitude of a voltage supplied to said second servomotor means, means coupled to said second servomotor means and responsive to the movement of said antenna about said horizontal axis, said means receiving an applied voltage of constant magnitude and supplying an output voltage varying in magnitude according to the secant of the elevation angle of said antenna, means coupling said output voltage to said first servomotor means for varying the speed of said first servomotor means according to the secant of the elevation angle of said antenna, reversing switch means coupled to said second servomotor means and responsive to the movement of said antenna about said horizontal axis, means coupling said output voltage varying according to the secant of said elevation angle to said reversing switch means, and means coupling the voltage from said reversing switch means to said second servomotor means for varying the speed of said second servomotor means according to the secant of the elevation angle of said antenna, said second servomotor means and said reversing switch means causing the elevation angle of said antenna to oscillate about said horizontal axis through an angle less than 90°.

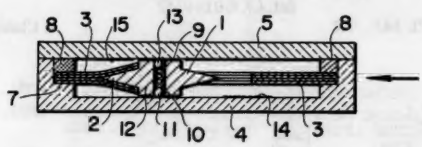
3,707,722

IMPACT ACCELERATION RECORDING DEVICE

Kazu Itoh, No. 14-30 Sakuragaoka 4-chome, Setagaya-ku, Tokyo, Japan

Filed Oct. 5, 1971, Ser. No. 186,751
Int. Cl. G01p 15/04
U.S. Cl. 346—7 10 Claims

A weight disc has a wedge-like perimeter and is held between and by the inner edges of thin annular plates of plastic material in coaxial laminated state, the outer edges of the plates being fixedly held by an outer case which is secured to an object subject to possible impact. The disc responds to such impact by shifting from its original position to an impact position, its wedge-like perimeter driving into and along the interfacial seam between the plates to deform the same apart.



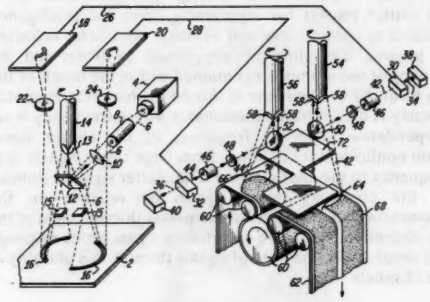
The distance of the shifting of the disc is measured and referred to previously obtained data to determine the acceleration due to impact.

3,707,723

LIGHT BEAM SCANNING

Martin Lewis Levene, Cherry Hill, N.J., assignor to RCA Corporation

Filed Oct. 14, 1970, Ser. No. 80,571
Int. Cl. H04n 1/00
U.S. Cl. 346—108 3 Claims



There is described an arrangement for illuminating a rotatable planar reflector so as to produce a conically swept light beam whose intersection with a substantially planar or spherical surface provides an arcuate illuminated scan locus.

3,707,724

Patent Not Issued For This Number

3,707,725

PROGRAM EXECUTION TRACING SYSTEM IMPROVEMENTS

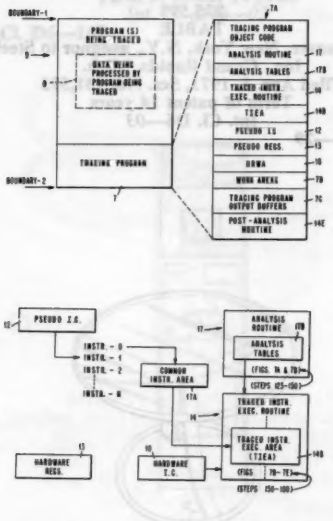
John L. Dellheim, Poughkeepsie, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed June 19, 1970, Ser. No. 47,705
Int. Cl. G06f 11/04; 9/18; G05b 17/02
U.S. Cl. 444—1 12 Claims

A tracing program method that copies into an area within a tracing program each instruction to be executed and traced in a manner which makes each traced instruction subservient to the tracing program. A hardware instruction counter of the computer system addresses the tracing program, rather than the program being traced. A programmed instruction counter controlled by the tracing program maintains the address within the traced program of its next instruction to be executed and traced. While being traced, the traced program is effectively executing its data using the same instruction sequence that it would use on the same data as if the tracing

program was not in the system and as if the traced program was alone operating on its data.

The tracing method can control the entire computer system



while tracing the programs that are being executed by the system. The tracing method can wholly or partially trace a program by sampling it over a cycle determined by time or by instruction count, or by an overriding manual control. When not tracing, the tracing program can go into a quiescence state, therein it retains control of the system in preparation for later tracing, but permits a speedup in the execution of subservient instructions.

The tracing method requires neither machine interrupts, nor modifications to the hardware or to the traced program code, for control of the computer system.

The tracing method provides data for each traced instruction in a form that can be subsequently analyzed by a disclosed trace analysis program so that the output from a single run of the tracing method can be used any number of times for varying types of analyses.

3,707,726

Patent Not Issued For This Number

3,707,727

Patent Not Issued For This Number

3,707,728

Patent Not Issued For This Number

DESIGNS

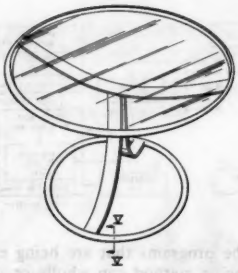
DECEMBER 26, 1972

225,595
SPIKE SHOE SOLE
Daniel J. McCarthy, Somerville, Mass., assignor to Converse Rubber Corporation, Malden, Mass.
Filed Oct. 9, 1970, Ser. No. 25,411
Term of patent 14 years
Int. Cl. D2—*04*
U.S. Cl. D2—321

225,596
TABLE
Bernard Locas, Montreal, Quebec, Canada, assignor to Geoform Designs, Inc., Montreal, Quebec, Canada
Filed Feb. 22, 1971, Ser. No. 117,877
Term of patent 14 years
Int. Cl. D6—*03*
U.S. Cl. D6—20

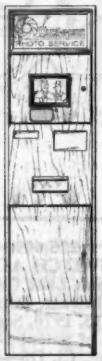
225,597
CHAIR
Stanley H. Hutchinson, Sierra Madre, Calif., assignor to David E. Vaughn, Owosso, Mich.
Filed Mar. 22, 1971, Ser. No. 127,061
Term of patent 14 years
Int. Cl. D6—*02*
U.S. Cl. D6—20

225,598
TABLE
Gardner Leaver, New York, N.Y., assignor to Steelcase Inc., Grand Rapids, Mich.
Filed Apr. 5, 1971, Ser. No. 131,593
Term of patent 14 years
Int. Cl. D6—*03*
U.S. Cl. D6—29

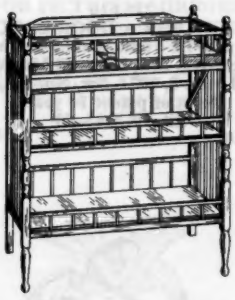


225,599
CHAIR
Stanley H. Hutchinson, Sierra Madre, Calif., assignor to David E. Vaughn, Owosso, Mich.
Filed Mar. 22, 1971, Ser. No. 127,065
Term of patent 14 years
Int. Cl. D6—*02*
U.S. Cl. D6—55

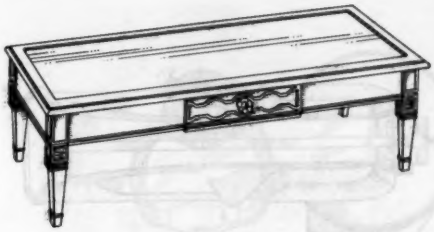
225,600
COMBINED ADVERTISING CABINET AND FILM DEPOSITORY
David L. Hill, Dunwoody, Ga., assignor to Leonard Wayne Johnson, Atlanta, Ga.
Filed Jan. 20, 1971, Ser. No. 108,248
Term of patent 14 years
Int. Cl. D20—*03*
U.S. Cl. D6—167



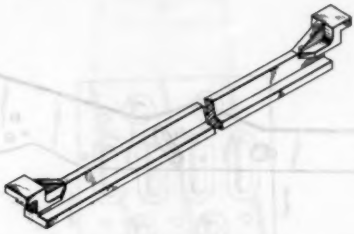
225,601
INFANT'S DRESSING TABLE
Raymond G. Pierson, Jr., Bedford, and Charles L. Voytko, Johnstown, Pa., assignors to Hedtrom Company, Bedford, Pa.
Filed Feb. 16, 1971, Ser. No. 115,920
Term of patent 7 years
Int. Cl. D6—*03*
U.S. Cl. D6—177



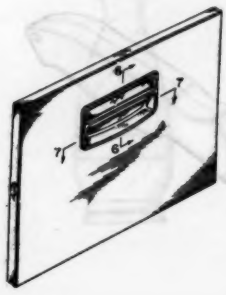
225,602
TABLE
Thomas Winrow, Naperville, Ill., assignor to Futorian Corporation, Amsterdam, N.Y.
Filed Nov. 30, 1970, Ser. No. 26,212
Term of patent 14 years
Int. Cl. D6—*03*
U.S. Cl. D6—179



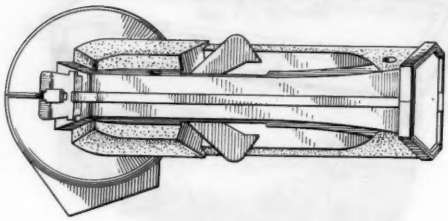
225,603
DRAWER GUIDE OR SIMILAR ARTICLE
Robert L. Jones, 308 Oxfordshire Lane, Louisville, Ky. 40207
Filed July 13, 1970, Ser. No. 23,933
Term of patent 14 years
Int. Cl. D6—*99*
U.S. Cl. D6—191



225,604
FILE DRAWER FACE PANEL
Iwawo Miyoshi, Tokyo, Japan, assignor to Kyoeikogyo Kabushikikaisha, Tokyo, Japan
Filed Feb. 22, 1971, Ser. No. 117,881
Term of patent 14 years
Int. Cl. D6—*95*
U.S. Cl. D6—192

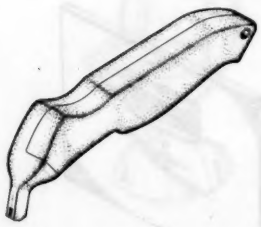


225,605
GRASS TRIMMER
John S. Doyel, 404 W. 20th St., Brooklyn, N.Y. 10011
Filed Feb. 19, 1971, Ser. No. 117,172
Term of patent 14 years
Int. Cl. D8—*03*
U.S. Cl. D8—8

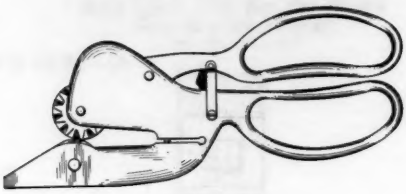


225,606
RATCHET WRENCH WITH OFFSET HANDLE
Franklin J. Teichmeier, Rte. 2, Ravenna, Nebr. 68869
Filed Aug. 14, 1970, Ser. No. 24,504
Term of patent 14 years
Int. Cl. D8—*05*
U.S. Cl. D8—25

225,607
HANDLE FOR GLASS CUTTER OR SIMILAR ARTICLE
Thomas A. Insolio, Bristol, Conn., assignor to The Fletcher-Terry Company, Farmington, Conn.
Filed Apr. 29, 1971, Ser. No. 138,850
Term of patent 14 years
Int. Cl. D8—*03*
U.S. Cl. D8—51

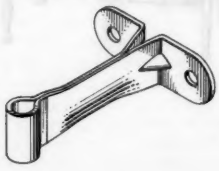


225,608
PINKING SHEARS OR SIMILAR ARTICLE
Werner W. Schwartz, Jackson Heights, N.Y., assignor to U.S. Industries, Inc., New York, N.Y.
Filed Mar. 8, 1971, Ser. No. 122,270
Term of patent 14 years
Int. Cl. D8—*03*
U.S. Cl. D8—57

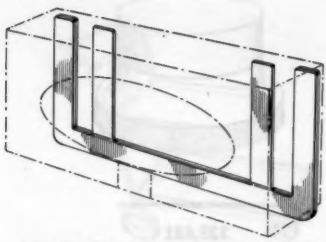


225,609
LIGHT SWITCH ACTUATOR
James C. Corbett, Salt Lake City, Utah, assignor to Bonnie L. Bricker, Bountiful, Utah
Filed Nov. 13, 1970, Ser. No. 25,954
Term of patent 14 years
Int. Cl. D8—*08*
U.S. Cl. D8—183

225,610
STRIKE FOR A DOOR CATCH
Robert E. Bunch, La Verne, Calif., assignor to Zenith Manufacturing, Inc., South El Monte, Calif.
Filed Mar. 8, 1971, Ser. No. 122,260
Term of patent 14 years
Int. Cl. D8—*03*
U.S. Cl. D8—203



225,611
TISSUE DISPENSER HOLDER
Arend M. Roskamp, 650 Constance Lane; Gresham R. Roskamp, 634 Westgate; and Robert G. Roskamp, 3005 Ierman, all of Deerfield, Ill. 60015
Filed Jan. 19, 1971, Ser. No. 107,873
Term of patent 14 years
Int. Cl. D8—*08*
U.S. Cl. D8—233

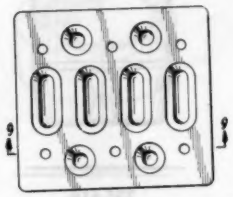


225,612
HOOK FOR SHOWER CURTAINS OR THE LIKE
Heinz Nathanson, New York, N.Y., assignor to Heinz Nathanson Incorporated, New York, N.Y.
Filed Oct. 28, 1971, Ser. No. 193,616
Term of patent 14 years
Int. Cl. D8—*08*
U.S. Cl. D8—248

225,613
HANGER, FOR PICTURES, MIRRORS, PLAQUES OR THE LIKE
L. Richard Chasen, Port Chester, N.Y., assignor to Coats & Clark, Inc., New York, N.Y.
Filed June 11, 1971, Ser. No. 152,480
Term of patent 14 years
Int. Cl. D8—*08*
U.S. Cl. D8—257

225,614
HANGER FOR PICTURES, MIRRORS, PLAQUES OR THE LIKE
L. Richard Chasen, Port Chester, N.Y., assignor to Coats & Clark, Inc., New York, N.Y.
Filed June 11, 1971, Ser. No. 152,479
Term of patent 14 years
Int. Cl. D8—*08*
U.S. Cl. D8—257

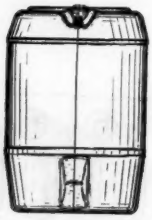
225,615
TRUCK DOCK BUMPER
John L. Bishop, Bethany, Okla., assignor to DLM, Inc., Oklahoma City, Okla.
Filed Nov. 6, 1970, Ser. No. 25,862
Term of patent 14 years
Int. Cl. D8—*99*
U.S. Cl. D8—263



225,616
BOTTLE
Bjorn Bagn, New Hartford, Conn., assignor to Emhart Corporation, Bloomfield, Conn.
Filed Sept. 3, 1970, Ser. No. 24,823
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—12

225,617
BOTTLE
Kenji Hanamura, Tokyo, Japan, assignor to Tancho Co., Ltd., Higashi-ku, Osaka, Japan
Filed Feb. 9, 1971, Ser. No. 114,102
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—169

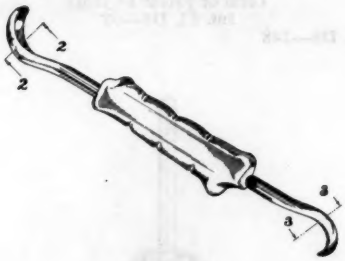
225,618
CONTAINER FOR LIQUIDS
Gaston Cantin, Montreal, Quebec, Canada, assignor to Twinpak Ltd., Quebec, Canada
Filed Jan. 21, 1971, Ser. No. 108,668
Claims priority, application Canada Aug. 18, 1970
Term of patent 14 years
Int. Cl. D9—*02*
U.S. Cl. D9—175



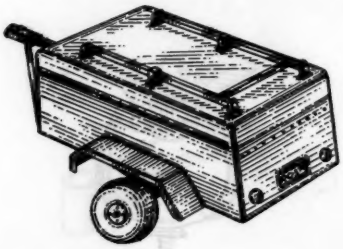
225,619
DISPENSING VALVE FOR PRESSURIZED DISPENSERS
Roger K. Bruce, Mission Viejo, Werner Marhold, Huntington Beach, and Cecil F. Adickes, Playa Del Rey, Calif., assignors to Sterigard Corporation, Santa Ana, Calif.
Filed Apr. 29, 1971, Ser. No. 138,863
Term of patent 14 years
Int. Cl. D9—*07*
U.S. Cl. D9—258

225,620
CLOSURE CAP FOR A CONTAINER
Carl F. Schmid, Park Ridge, Ill., assignor to Turtle Wax, Inc., Chicago, Ill.
Filed Dec. 29, 1970, Ser. No. 26,695
Term of patent 14 years
Int. Cl. D9—*07*
U.S. Cl. D9—261

225,621
BUTCHER'S SPINAL CORD REMOVER
John D. Malkovich and Vernie M. Malkovich, both of 4420 Bela Way, Carmichael, Calif. 95608
Filed May 3, 1971, Ser. No. 140,005
Term of patent 14 years
Int. Cl. D7—*04*
U.S. Cl. D11—1

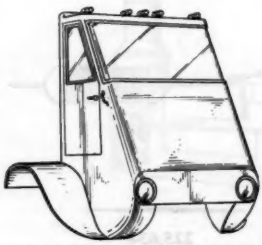


225,622
CAMPING TRAILER
Richard I. Carroll, 1726 E. 1st Ave., Mesa, Ariz. 85204
Filed Feb. 1, 1971, Ser. No. 111,805
Term of patent 14 years
Int. Cl. D12—*10*
U.S. Cl. D14—3

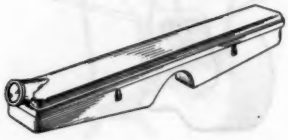


225,623
SHOPPING CART
Fred Pankiw, Weston, Ontario, Canada, assignor to Pan-Wal Mechanical Services Limited, Weston, Ontario, Canada
Filed May 4, 1971, Ser. No. 140,316
Term of patent 14 years
Int. Cl. D12—*02*
U.S. Cl. D14—3

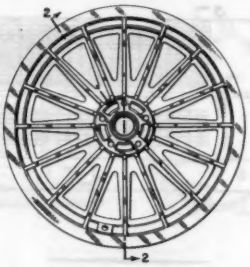
225,624
TRUCK CAB
Dean Hobbensiefken, Rte. 1, P.O. Box 241, Lyons, Oreg.
Filed Nov. 23, 1971, Ser. No. 201,625
Term of patent 14 years
Int. Cl. D12—*08*
U.S. Cl. D14—3



225,625
COMBINATION TRAILER FENDER AND COMPARTMENT
Arlen L. Huff, South Bend, Ind., assignor to Sellers Manufacturing, Inc., Wakarusa, Ind.
Filed Apr. 1, 1971, Ser. No. 130,558
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D14—6

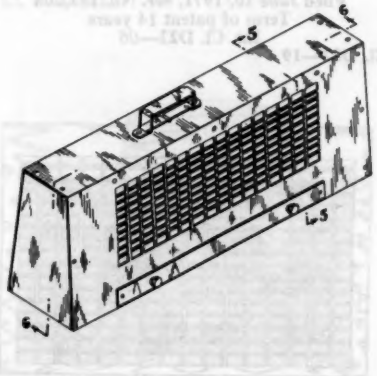


225,626
MOTORCYCLE WHEEL
William G. Davidson, Elm Grove, Wis., assignor to AMF Incorporated
Filed Oct. 30, 1970, Ser. No. 25,727
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D14—30

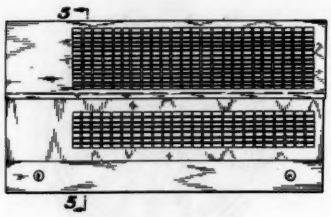


225,627
PHARMACEUTICAL TABLET
Richard Herbert Gomel, Frank Leon Ogar, and George Ronald Tomaich, Elkhart, Ind., assignors to Miles Laboratories, Inc., Elkhart, Ind.
Filed Mar. 25, 1971, Ser. No. 128,203
Term of patent 14 years
Int. Cl. D28—*01*; D1—*01*
U.S. Cl. D16—3

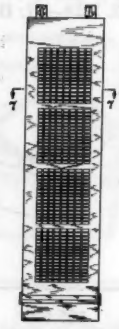
225,628
ELECTROCUTING TRAP FOR FLYING INSECTS
Donald E. Gilbert, Jonesboro, Ark., assignor to Gilbert Electronics, Inc., Jonesboro, Ark.
Filed May 7, 1971, Ser. No. 141,460
Term of patent 14 years
Int. Cl. D22—*06*
U.S. Cl. D22—19



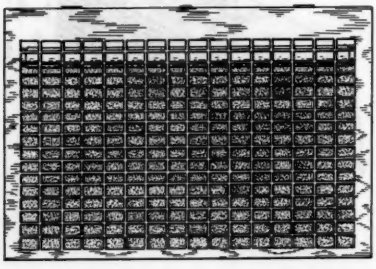
225,629
INSECT ELECTROCUTOR
Donald E. Gilbert, Jonesboro, Ark., assignor to Gilbert Electronics, Inc., Jonesboro, Ark.
Filed May 20, 1971, Ser. No. 145,596
Term of patent 14 years
Int. Cl. D22—*06*
U.S. Cl. D22—19



225,630
WALL-TYPE INSECT ELECTROCUTOR
Donald E. Gilbert, Jonesboro, Ark., assignor to Gilbert Electronics, Inc., Jonesboro, Ark.
Filed June 1, 1971, Ser. No. 149,107
Term of patent 14 years
Int. Cl. D22—*06*
U.S. Cl. D22—19



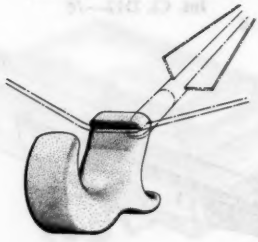
225,631
LIGHT ATTRACTING ADHESIVE INSECT TRAP
Donald E. Gilbert, Jonesboro, Ark., assignor to Gilbert Electronics, Inc., Jonesboro, Ark.
Filed June 10, 1971, Ser. No. 152,008
Term of patent 14 years
Int. Cl. D22—*06*
U.S. Cl. D22—19



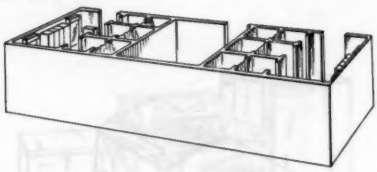
225,632
FISHING ROD HANDLE
Bob G. Reddin, 3609 Winifred Drive, Fort Worth, Tex. 76109, and Foy D. Bostic, 220 NE. Craig, Burleson, Tex. 76028
Filed Feb. 22, 1971, Ser. No. 117,879
Term of patent 14 years
Int. Cl. D22—*05*
U.S. Cl. D22—23

225,633
FISH KILLING TOOL
Billy B. Teter, 2532 Greenwood, Wichita, Kans. 67202
Filed Apr. 12, 1971, Ser. No. 133,460
Term of patent 14 years
Int. Cl. D22—*05*
U.S. Cl. D22—31

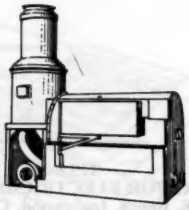
225,634
BOWSTRING DRAWING AND RELEASING DEVICE
Dale F. Halter, 25825 Brynmawr Ave., Hayward, Calif. 94544
Filed Mar. 22, 1971, Ser. No. 127,060
Term of patent 14 years
Int. Cl. D22—*99*
U.S. Cl. D22—99



225,635
PORTABLE SHOWER FACILITY OR THE LIKE
Joseph F. Dowd, P.O. Box 82, Hatch, N. Mex. 87937
Filed Feb. 23, 1971, Ser. No. 118,204
Term of patent 14 years
Int. Cl. D23—*02*
U.S. Cl. D23—49

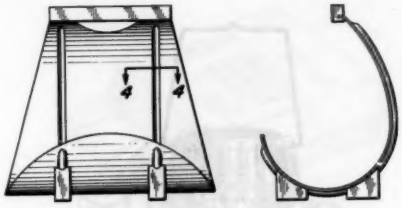


225,636
INCINERATOR
Bruce R. Hutchinson, Andover, and Robert N. Brooks, West Hartford, Conn., assignors to Silent Glow Corporation, Bloomfield, Conn.
Filed July 15, 1970, Ser. No. 23,970
Term of patent 14 years
Int. Cl. D23—*79*
U.S. Cl. D23—85

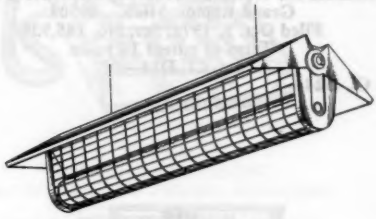


225,637
COMBINED FIREPLACE GRATE AND LOG HOLDER
Robert T. Schmitt, 517 Johnson Road NW., Grand Rapids, Mich. 49504
Filed May 27, 1971, Ser. No. 147,727
Term of patent 14 years
Int. Cl. D23—*03*
U.S. Cl. D23—98

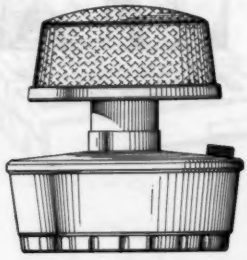
225,638
SCUTTLE FOR FIREWOOD
Neil B. Christianson, 1551 E. Burton Court, R.F.D. 6, Ogden, Utah 84403
Filed Feb. 18, 1971, Ser. No. 116,729
Term of patent 14 years
Int. Cl. D23—*99*
U.S. Cl. D23—104



225,639
CATALYTIC HEATER
Jay N. Smith, Wichita, Kans., assignor to Impala Industries, Inc., Wichita, Kans.
Filed Mar. 17, 1971, Ser. No. 125,450
Term of patent 14 years
Int. Cl. D23—*03*
U.S. Cl. D23—110

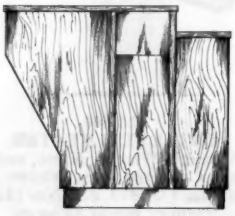


225,640
CATALYTIC HEATER
Benjamin C. Baugh, Wichita, Kans., assignor to The Coleman Company, Inc., Wichita, Kans.
Filed Feb. 17, 1971, Ser. No. 116,298
Term of patent 14 years
Int. Cl. D23—*03*
U.S. Cl. D23—122

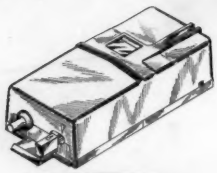


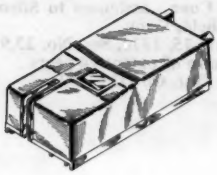
225,641
COMBINED CATALYTIC HEATER AND PROTECTIVE COVER THEREFOR
Benjamin C. Baugh, Wichita, Kans., assignor to The Coleman Company, Inc., Wichita, Kans.
Filed Feb. 17, 1971, Ser. No. 116,300
Term of patent 14 years
Int. Cl. D23—*03*
U.S. Cl. D23—123

225,642
ORTHODONTIC CABINET
Ransom M. Westover, 4130 Baywood Drive SE., Grand Rapids, Mich. 49501
Filed Oct. 1, 1971, Ser. No. 185,930
Term of patent 14 years
Int. Cl. D24—*01*
U.S. Cl. D24—1



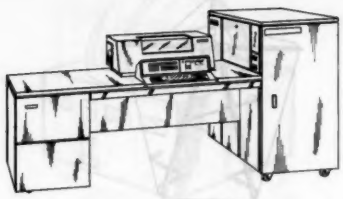
225,643
REACTION TESTING DEVICE
Larry Harrison, Clifton Springs, N.Y., assignor to Xerox Corporation, Stamford, Conn.
Filed May 19, 1971, Ser. No. 144,937
Term of patent 14 years
Int. Cl. D19—*07*
U.S. Cl. D25—1





225,644
HOUSING FOR ELECTRICAL APPARATUS
Kenneth E. Beach, Inglewood, Colo., assignor to Honeywell, Inc., Minneapolis, Minn.
Filed Jan. 22, 1971, Ser. No. 109,089
Term of patent 14 years
Int. Cl. D13—*99*
U.S. Cl. D26—5

225,645
DATA PROCESSING ENSEMBLE
Loring C. Bixler, Vestal, N.Y., Myron F. Davis and Francis J. Eisenman, Jr., Boca Raton, Fla., and Edward R. Wiener, Vestal, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed July 20, 1970, Ser. No. 24,036
Term of patent 14 years
Int. Cl. D14—*02*
U.S. Cl. D26—5

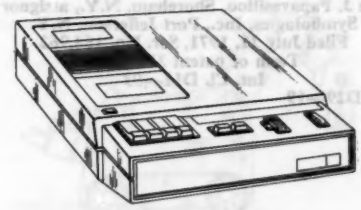


225,646
SUBSCRIBER TERMINAL CONSOLE
Peter P. Klepa and Thomas J. Hermann, Los Angeles, Calif., assignors to Hughes Aircraft Company, Culver City, Calif.
Filed July 6, 1971, Ser. No. 160,253
Term of patent 7 years
Int. Cl. D14—*02*
U.S. Cl. D26—5

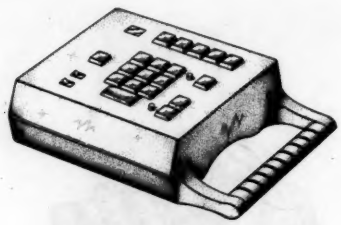
225,647
DIGITAL COMMUNICATIONS TERMINAL
Philip L. Brooks, Menlo Park, Robert W. Davies, Cupertino, Thomas E. Lash, Milpitas, Robert E. Maloney, Sunnyvale, and Svein T. Nordberg, Saratoga, Calif., assignors to GTE Sylvania Incorporated
Filed Aug. 3, 1971, Ser. No. 168,800
Term of patent 14 years
Int. Cl. D14—*02;* D18—*01*
U.S. Cl. D26—5

225,648
INTERCOMMUNICATIONS SET
Jean-Louis Barrault, Paris, France, assignor to Compagnie Industrielle des Telecommunications CIT-ALCATEL, Paris, France
Filed Apr. 20, 1971, Ser. No. 135,819
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D26—14

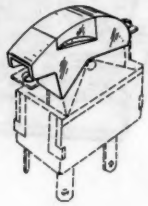
225,649
TELEPHONE ANSWERING MACHINE
Charles W. Ho, San Francisco, Calif.
(3144 Somerset Place, Lafayette, Calif. 94549)
Filed Apr. 30, 1971, Ser. No. 139,305
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D26—14

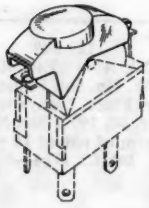


225,650
PORTABLE DATA SET
Robert P. Mulholland, Centerville, Ohio, assignor to Monarch Marking Systems, Inc., Dayton, Ohio
Filed Oct. 22, 1970, Ser. No. 25,606
Term of patent 14 years
Int. Cl. D14—*02*
U.S. Cl. D26—5



225,651
SAFETY SWITCH TOGGLE
Ralph W. Shifley, O'Fallon, Mo., assignor to Emerson Electric Co., St. Louis, Mo.
Filed Dec. 23, 1970, Ser. No. 26,628
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D26—13

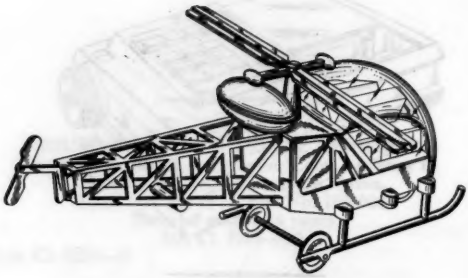




225,652
MEDALLION
Elaine J. Papavasiliou, Shoreham, N.Y., assignor to Symbologics, Inc., Port Jefferson, N.Y.
Filed July 21, 1971, Ser. No. 164,962
Term of patent 3½ years
Int. Cl. D11—*03*
U.S. Cl. D29—19

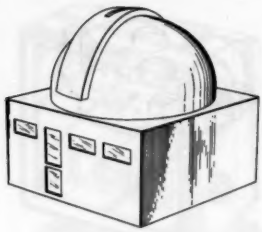
225,653
KITE
Sam Kupperman and Dennis I. Kupperman, both of 4139 Main St., Skokie, Ill. 60603
Filed Jan. 21, 1971, Ser. No. 108,673
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15

225,654
HELICOPTER TOY
Norman Spiegel, New York, N.Y., assignor to Nasta Industries, Inc.
Filed Apr. 5, 1971, Ser. No. 131,569
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15

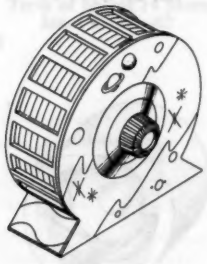


225,655
GOLF CLUB CLEANING TOOL
Frank Masters Johnson, 9542 S. Yates, Chicago, Ill. 60617
Filed Apr. 23, 1971, Ser. No. 137,110
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D34—5

225,656
COIN BANK
George F. Gruskos, 69 Cayuga Ave., Oceanport, N.J. 07757
Filed May 6, 1971, Ser. No. 141,087
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—11

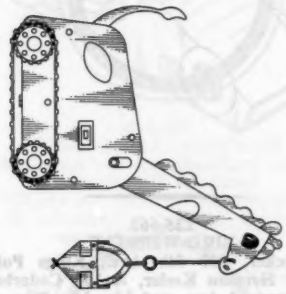


225,657
COMBINED GAME DEVICE AND SAVINGS BANK
Elaine G. Vigan, 1932 Weepah Way, Hollywood, Calif. 90010
Filed July 19, 1971, Ser. No. 164,188
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—11

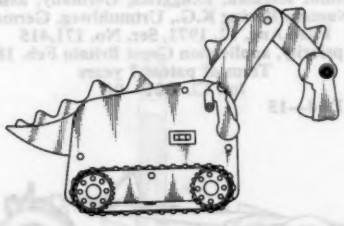


225,658
THREADING BLOCK TOY
Lynn Pressman, 200 5th Ave., New York, N.Y. 10017
Filed Sept. 18, 1970, Ser. No. 25,052
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15

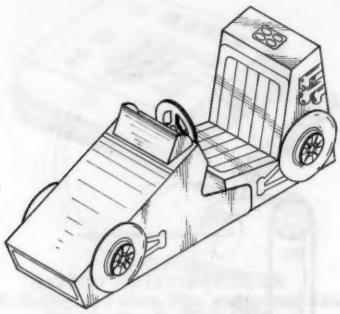
225,659
TOY TRUCK CRANE
Yasuta Satoh, 758, 5-chome, Matsugaoka, Nagareyama, Japan
Filed Mar. 15, 1971, Ser. No. 124,628
Claims priority, application Japan Jan. 30, 1971
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15



225,660
TOY SHOVEL LOADER
Yasuta Satoh, 758, 5-chome, Matsugaoka, Nagareyama, Japan
Filed Mar. 15, 1971, Ser. No. 124,629
Claims priority, application Japan Jan. 30, 1971
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15

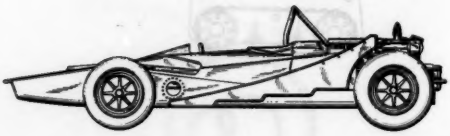


225,661
TOY RACING CAR
Donald Richard Everhart, Prairie Village, and Don Pratt, Mission, Kans., and John W. Chaisson, Kansas City, Mo., assignors to Crescent Interprise, Inc., Prairie Village, Kans.
Filed May 26, 1971, Ser. No. 147,284
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15



225,662
BIRD WHISTLE
James R. Becker, 200 5th Ave., Kings Point, N.Y. 10010, and Herman Kesler, A–102 Cedarbrook Hill Apts., Greenwood Ave. and Limekiln Pike, Wyncote, Pa. 19095
Filed June 7, 1971, Ser. No. 150,885
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D34—15

225,663
MODEL RACING CAR
Josef Helmut Karasek, Lenggries, Germany, assignor to McNamara Racing K.G., Urtmuhlweg, Germany
Filed Aug. 12, 1971, Ser. No. 171,415
Claims priority, application Great Britain Feb. 18, 1971
Term of patent 7 years
Int. Cl. D21—*01*
U.S. Cl. D34—15

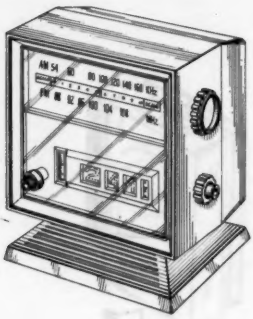


225,664
SEED PLATE ADAPTER
Leonard T. Fleischer, 315 Pershing Road, Columbus, Nebr. 68601
Filed Mar. 4, 1971, Ser. No. 121,224
Term of patent 14 years
Int. Cl. D15—*03*
U.S. Cl. D35—2

225,665
ABRASIVE GRINDING WHEEL
Johnnie Kuest, P.O. Box 1254, Twin Falls, Idaho 83301
Filed Jan. 25, 1971, Ser. No. 109,731
Term of patent 14 years
Int. Cl. D15—*99*
U.S. Cl. D37—1

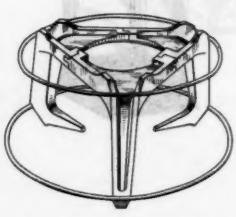
225,666
ABRASIVE GRINDING WHEEL INCLUDING ENTRANCEWAY
Johnnie Kuest, P.O. Box 1254, Twin Falls, Idaho 83301
Filed Jan. 25, 1971, Ser. No. 109,757
Term of patent 14 years
Int. Cl. D15—*99*
U.S. Cl. D37—1

225,667
CLOCK RADIO
John Y. Sugihara, Streamwood, Ill., assignor to Gemini International Corp.
Filed Dec. 28, 1970, Ser. No. 26,672
Term of patent 14 years
Int. Cl. D10—*01*
U.S. Cl. D42—7



225,668
INSULATED BUCKET FOR ICE OR THE LIKE
David W. Darr, 2727 Spring Garden Road, Winston-Salem, N.C. 27106
Filed Oct. 15, 1970, Ser. No. 25,497
Term of patent 14 years
Int. Cl. D7—*02*
U.S. Cl. D44—1

225,669
WARMING STAND
Pierre Maurice Joseph Toiseux, Bellegarde, France, assignor to Ronson Corporation, Woodbridge, N.J.
Filed Jan. 27, 1971, Ser. No. 110,241
Claims priority, application France Aug. 18, 1970
Term of patent 14 years
Int. Cl. D7—*02*
U.S. Cl. D44—10



225,670
PLATE OR THE LIKE
Ottorino N. Mercadante, Corning, N.Y., assignor to Corning Glass Works, Corning, N.Y.
Continuation of design applications Ser. No. 22,757 and Ser. No. 22,760, both May 1, 1970. This application Jan. 25, 1971, Ser. No. 109,728
Term of patent 14 years
Int. Cl. D7—*01*
U.S. Cl. D44—15

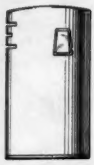
225,671
TEA INFUSER
Teru Tanaka, 8–13 Ohmori Hon-machi 1-chome, Tokyo, Japan
Filed Dec. 24, 1970, Ser. No. 26,635
Claims priority, application Japan Sept. 10, 1970
Term of patent 14 years
Int. Cl. D7—*04*
U.S. Cl. D44—26

225,672
DECORATIVE ARCH FOR ELECTRIC LAMPS
Rolf Anders Thunman, Skogsstigen 9, Ronninge, Sweden
Filed Dec. 2, 1970, Ser. No. 26,256
Claims priority, application Denmark June 3, 1970
Term of patent 7 years
Int. Cl. D26—*05*
U.S. Cl. D48—14

225,673
ELECTRIC LAMP CASING
Rene Marcel Angibaud, Vernon, France, assignor to Societe les Piles Wonder
Filed Apr. 20, 1971, Ser. No. 135,827
Claims priority, application France Oct. 23, 1970
Term of patent 14 years
Int. Cl. D26—*02*
U.S. Cl. D48—24

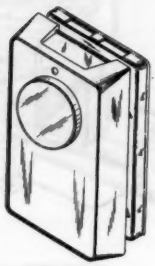
225,674
HEAD FOR A GAS TIKI TORCH
James D. Reese, 11937 Avenue 274, Visalia, Calif. 91026
Filed June 21, 1971, Ser. No. 155,409
Term of patent 14 years
Int. Cl. D26—*02, 05*
U.S. Cl. D48—24

225,675
CIGARETTE LIGHTER
Pierre Toiseux, Bellegarde, France, assignor to Ronson Corporation, Woodbridge, N.J.
Filed May 10, 1971, Ser. No. 142,089
Claims priority, application France Nov. 16, 1970
Term of patent 14 years
Int. Cl. D27—*05*
U.S. Cl. D48—27

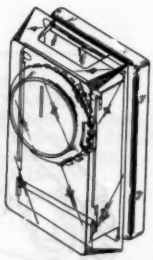


225,676
LIGHTING FIXTURE
Dean W. Bankert, Littlestown, and Douglas L. Wilson, Hanover, Pa., assignors to Hadco Products, Inc., Littlestown, Pa.
Filed June 30, 1971, Ser. No. 158,662
Term of patent 14 years
Int. Cl. D26—*03*
U.S. Cl. D48—31

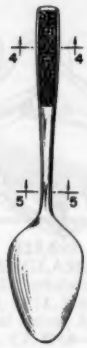
225,677
ELECTRICAL THERMOSTAT
Jean R. Fortier, South Orange, N.J., and Paul S. Martin, Flushing, N.Y., assignors to Federal Pacific Electric Company, Newark, N.J.
Filed June 3, 1971, Ser. No. 149,871
Term of patent 14 years
Int. Cl. D10—*04*
U.S. Cl. D52—7



225,678
ELECTRICAL THERMOSTAT
Henry Leong, Kendall Park, Thomas Johnson, Hopewell, and Jean R. Fortier, South Orange, N.J., assignors to Federal Pacific Electric Company, Newark, N.J.
Filed June 3, 1971, Ser. No. 149,885
Term of patent 14 years
Int. Cl. D10—*04*
U.S. Cl. D52—7

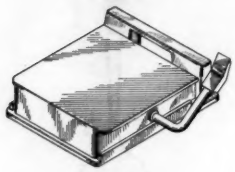


225,679
SPOON OR SIMILAR ARTICLE OF FLATWARE
Siro R. Toffolon, Meriden, Conn., assignor to International Silver Company, Meriden, Conn.
Filed Nov. 19, 1971, Ser. No. 200,646
Term of patent 14 years
Int. Cl. D7—*03*
U.S. Cl. D54—12

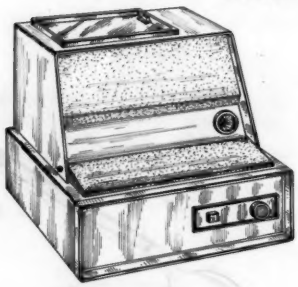


225,680
SPOON OR THE LIKE
Paul A. Gowell, R.D. P.O. Box 159–B, Great Barrington, Mass. 01230
Filed Dec. 13, 1971, Ser. No. 207,719
Term of patent 14 years
Int. Cl. D7—*03*
U.S. Cl. D54—12

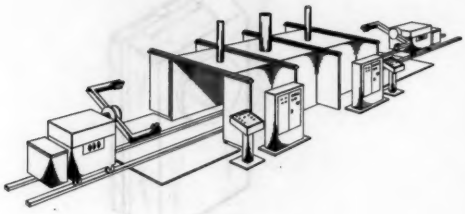
225,681
SUCTION MOUNTING DEVICE
Larry Harrison, Clifton Springs, N.Y., assignor to Xerox Corporation, Rochester, N.Y.
Filed May 19, 1971, Ser. No. 144,936
Term of patent 14 years
Int. Cl. D15—*99*
U.S. Cl. D54—13



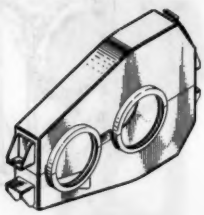
225,682
CRIMPING MACHINE
Thomas Charles Mills, Wheaton, Ill., assignor to Bunker Ramo Corporation, Oak Brook, Ill.
Filed May 24, 1971, Ser. No. 146,613
Term of patent 14 years
Int. Cl. D15—*99*
U.S. Cl. D55—1



225,683
RESINS CASTING MACHINE
Raymond W. Kerr, 3731 N. 58th St., Lincoln, Nebr. 68529
Filed Nov. 24, 1970, Ser. No. 26,144
Term of patent 14 years
Int. Cl. D15—*99*
U.S. Cl. D55—1

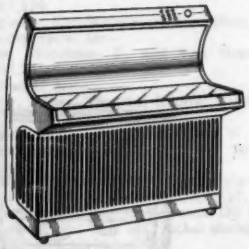


225,684
GEAR HOUSING
David B. Bogan, Los Angeles, Calif., assignor to David B. Bogan Corporation, Sherman Oaks, Calif.
Filed Nov. 30, 1970, Ser. No. 26,229
Term of patent 14 years
Int. Cl. D15—*99*
U.S. Cl. D55—1



225,685
JUKEBOX
Horst Friedrich, Bad Kreuznach, Germany, assignor to NSM-Apparatebau G.m.b.H., Kommanditgesellschaft, Bingen, Germany
Filed Feb. 22, 1971, Ser. No. 117,856
Term of patent 14 years
Int. Cl. D14—*01*
U.S. Cl. D56—4

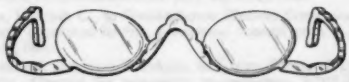
225,686
JUKEBOX OR SIMILAR ARTICLE
Horst Friedrich, Bad Kreuznach, Germany, assignor to NSM-Apparatebau G.m.b.H., Kommanditgesellschaft, Bingen, Germany
Filed Nov. 8, 1971, Ser. No. 196,877
Term of patent 14 years
Int. Cl. D14—*01*
U.S. Cl. D56—4



225,687
EYEGLASSES
Mary Irene Wick, 7533 Parkdale, Clayton, Mo. 63105
Filed May 19, 1971, Ser. No. 145,109
Term of patent 14 years
Int. Cl. D16—*06*
U.S. Cl. D57—1

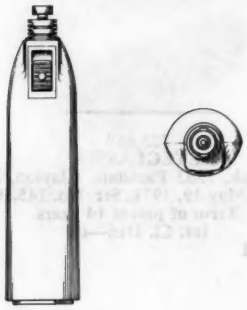
225,688
EYEGLASSES
Mary Irene Wick, 7533 Parkdale, Clayton, Mo. 63105
Filed May 19, 1971, Ser. No. 145,108
Term of patent 14 years
Int. Cl. D16—*06*
U.S. Cl. D57—1

225,689
EYEGLASSES
Mary Irene Wick, 7533 Parkdale, Clayton, Mo. 63105
Filed May 19, 1971, Ser. No. 145,107
Term of patent 14 years
Int. Cl. D16—*06*
U.S. Cl. D57—1

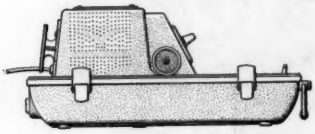


225,690
CLIP FOR A WRITING INSTRUMENT
Michael P. Arnone, North Bergen, N.J., assignor to Kreisler Manufacturing Corporation, North Bergen, N.J.
Filed Apr. 19, 1971, Ser. No. 135,516
Term of patent 14 years
Int. Cl. D19—*99*
U.S. Cl. D74—17

225,691
HANDLE FOR MEDICAL DIAGNOSTIC INSTRUMENTS
Arthur J. Pulos, Fayetteville, N.Y., assignor to Welch Allyn, Inc., Skaneateles Falls, N.Y.
Filed July 14, 1971, Ser. No. 162,757
Term of patent 14 years
Int. Cl. D24—*02*
U.S. Cl. D83—12

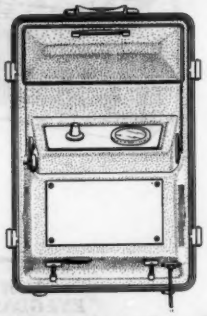


225,692
PORTABLE RESPIRATOR
Forrest M. Bird, Mark 7, Respirator Lane, and Henry L. Pohndorf, 1227 Brewster Drive, both of Palm Springs, Calif. 91421
Filed July 9, 1971, Ser. No. 161,415
Term of patent 14 years
Int. Cl. D24—*02*
U.S. Cl. D83—1



225,693
FOLDING COMB
Murry Abbott, North Providence, R.I., assignor to Cornell Manufacturing Co., Woonsocket, R.I.
Filed Nov. 17, 1971, Ser. No. 199,820
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D86—8

225,694
KNIFE OR SIMILAR ARTICLE OF FLATWARE
Irwin Schneider, Lincolnwood, Ill., assignor to Imperial Arts Corporation, Chicago, Ill.
Filed Oct. 26, 1970, Ser. No. 25,676
Term of patent 14 years
Int. Cl. D7—*03*
U.S. Cl. D95—3



LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 26TH DAY OF DECEMBER, 1972

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

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Alday, James M., to Remington Arms Company, Inc. Accelerating gas system for gas-operated firearms. 3,707,110, Cl. 89-193.000.

Alexander, John William, to Kewanee Oil Company. Removal of hydrocoumaric acid from acid nickel plating baths containing coumarin. 3,707,447, Cl. 204-49.000.

Alger, Martin J., Jr.; and Dunn, Nelson H., to General Signal Corporation. Method of producing steel cylinder barrels having bonded bronze valve plates. 3,707,034, Cl. 29-527.600.

Alger, Martin J., Jr.; and Dunn, Nelson H., to General Signal Corporation. Method of producing steel cylinder barrels having bonded bronze cylinder liners. 3,707,035, Cl. 29-527.600.

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Ames, Stephen A., to Westinghouse Electric Corporation. Radar system. 3,707,718, Cl. 343-7.700.

Amiard, Gaston; and Heymes, Rene, to Roussel-UCLAF. 1,3-Thiazines and their preparation. 3,707,540, Cl. 260-243.00r.

AMP Incorporated: *See—*
Carter, Clyde Thomas, 3,707,696.

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Anderson, Earl R., to Brex Corporation. Anti-bridging means for bulk fruit feed supply. 3,707,223, Cl. 198-185.000.

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Appelo, Hendrik C., to Westinghouse Electric Corporation. Chopper control apparatus having a common control path. 3,707,659, Cl. 318-52.000.

Arai, Hiroshi; and Mori, Takakazu, to Toyota Jidosha Kogyo Kabushiki Kaisha. Control for automatic transmission. 3,707,097, Cl. 74-866.000.

Arlen, David; Guido, Louis A.; and Quinn, Lawrence P., to Sperry Rand Corporation. Apparatus for extending contact life of relays utilized for A.C. load switching. 3,707,634, Cl. 307-138.000.

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Arrigo, Joseph T.; and Sparks, Allen K., to Universal Oil Products Company. Process for preparing cyclic compounds. 3,707,481, Cl. 260-343.20r.

Artelt, Herbert C., Jr., to Kollaman Instrument Corporation. Adjustable label form slitter for addressing machines. 3,707,424, Cl. 156-521.000.

Artz, Klaus; Ramanathan, Visvanathan; and Moser, Peter, to Ciba-Geigy AG. Azo dyestuffs containing a benzthiazolyl group. 3,707,532, Cl. 260-158.000.

Athey, Stuart E.; and Geiger, Paul B., to Hobart Manufacturing Company, The. Dishwashing machine with automatic indicating signals. 3,707,156, Cl. 134-57.0dl.

Atkin, Rupert L.: *See—*
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Ayerst, McKenna & Harrison, Limited: *See—*
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Bagley, George E.; and Poshkus, Algirdas C., to Armstrong Cork Company. Tetramethylformamidinium arenesulfonates and method of preparation. 3,707,553, Cl. 260-501.140.

Bagli, Jehan F.; and Bogri, Tibor, to Ayerst, McKenna & Harrison, Limited. Method of preparing prostanoic acid derivatives. 3,707,451, Cl. 204-158.00r.

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Bahder, George; and Garcia, Felipe G., to General Cable Corporation. Method and apparatus for measuring corona inception voltage on overhead conductors and the like. 3,707,674, Cl. 324-72.000.

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Oertel, Gunter; Holtschmidt, Hans; Dollhausen, Manfred; and Bock, Eugen, 3,707,486.

Boehringer, C. H., Sohn, Ingelheim: *See—*
Ost, Walter; Thomas, Klaus; and Jerchel, Dietrich, 3,707,477.

Boehringer Ingelheim G.m.b.H.: *See—*
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Weber, Karl-Heinz; Zeile, Karl; Danneberg, Peter; Giesemann, Rolf; and Hauptmann, Heinz (said Weber said Zeile said Danneberg and said Giesemann assors. to), 3,707,539.

Boehringer Mannheim G.m.b.H.: *See—*
Haid, Erich; and Nelboeck-Hochstetter, Michael, 3,707,536.
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Boelkins, Wallace G., to Uni-Mist, Inc. Rotary spool valve. 3,707,168, Cl. 137-625.480.

Boer, Elmer J.; and Van Huis, Robert L., to U.S. Industries, Inc. Capstan cable drive. 3,707,141, Cl. 119-22.000.

Boesch, William J.; Darmara, Falih N.; and Warmuth, Francis J., to Special Metals Corporation. Nickel base alloy. 3,707,409, Cl. 148-32.500.

Bogri, Tibor: *See—*
Bagli, Jehan F.; and Bogri, Tibor, 3,707,451.
Bagli, Jehan F.; and Bogri, Tibor, 3,707,548.

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Bogue, John C.; and Sarbacher, Robert I., 3,707,405.

Bogue, John C.; and Sarbacher, Robert I., to Bogue, John C. Sequentially energized battery. 3,707,405, Cl. 136-173.000.

Bohanec, August. Camera strap retractor. 3,707,109, Cl. 95-86.000.

Boileau, Jacques, to Compagnie Generale des Etablissements Michelin raison sociale Michelin & Cie. Tire tread with variable-width recesses. 3,707,177, Cl. 152-209.000.

Bokros, Jack C.; and Ellis, Willard H., to Gulf Oil Corporation. Orthopedic device for repair or replacement of bone. 3,707,006, Cl. 3-1.000.

Boltrek, Henry; and Kraft, Joseph K., to Westinghouse Electric Corporation. Modular passenger conveyor construction. 3,707,220, Cl. 198-16.000.

Bombardier Limited: *See—*
Perreault, Jules; and Lemieux, Claude, 3,707,297.

Booth, William C.: *See—*
Faconti, Victor, Jr.; and Booth, William C., 3,707,044.

Boots Pure Drug Company Limited: *See—*
Bryce, Douglas Maxwell, 3,707,148.

Borchers, Edward L.: *See—*
Francis, Thomas V.; and Borchers, Edward L., 3,707,276.

Bortz, Jack D. Shelf bracket cover. 3,707,273, Cl. 248-235.000.

Bosch, Robert, G.m.b.H.: *See—*
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Bosso, Joseph F.: *See—*
Wismer, Marco; and Bosso, Joseph F., 3,707,414.

Boulanger, Henry J.: *See—*
Dapot, Martin H.; and Boulanger, Henry J., 3,707,609.

Bradley, William E., to Puredesal, Inc., mesne. Two-stage fluid treatment system. 3,707,231, Cl. 210-98.000.

Braun A. G.: *See—*
Scheibel, Josef, 3,707,327.

Brazell, James W., to Heath International, Inc., mesne. Gear type coupling. 3,707,081, Cl. 64-9.00r.

Bretschneider, Hermann; Kraft, Innsbruck; Grussner, Andre; and Zur Nedden, Klaus, to Hoffmann-La Roche Inc. N-phenylsulfonylbornane-carboxamides and narbornane-carboxamides. 3,707,558, Cl. 260-556.0ac.

Brex Corporation: *See—*
Anderson, Earl R., 3,707,223.

Bridigum, Robert J., to Westinghouse Air Brake Company. Cam arrangement for brake head position adjustment. 3,707,209, Cl. 188-220.600.

Brill, Henry L.; and Stanford, James A., to E.R.E. Laboratory, Inc. Variable projector speed control. 3,707,253, Cl. 226-76.000.

Brille, Maurice Georges, to Societe Anonyme de Vehicules Industriels et d'Equipements Mecaniques, S.A.V.I.E.M. Device for reducing leakage in rotary engines at low running speeds. 3,707,340, Cl. 418-115.000.

Brinkmann, Martin, Aktiengesellschaft: *See—*
Brunhorn, Konrad; and Groschel, Heinz, 3,707,153.

British Oxygen Company, Limited, The: *See—*
Budgen, Leslie J., 3,707,339.
Carne, Michael; Smith, Kenneth Cecil; and Webber, David Arthur, 3,707,066.
Spielmann, Erich R, 3,707,407.

Britt, Tomas M., to Owens-Illinois, Inc. Tray package for tubes. 3,707,227, Cl. 206-65.00r.

Broughton, Donald B.: *See—*
Stine, Laurence O.; and Broughton, Donald B., 3,707,550.

Broun, Thorowgood T., Jr., to PPG Industries, Inc. Montmorillonite clays as aids in steam distillation of tetraalkyl lead. 3,707,443, Cl. 203-50.000.

Brown International Corporation: *See—*
Bushman, Ronald C., 3,707,176.

Brown, Melancthen Starr; deceased (by Kohn, Gustave K.; administrator), to Chevron Research Company. Sulfonyl and sulfinyl phenyl ureas. 3,707,557, Cl. 260-553.00a.

Brown, Morris E., to Eastman Kodak Company. Apparatus for scanning continuously moving film for color television. 3,707,599, Cl. 178-7.200.

Bruckner, Horst: *See—*
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Bruley, Maurice George Marie; and Ferret, Pierre, to International Standard Electric Corporation. Automatic moble radio telephone system. 3,707,679, Cl. 325-5.000.

Brunelle, William; and Cartwright, James W., to Weatherhead Company, The. Method of farming an abrasion resistant hose assembly. 3,707,032, Cl. 29-460.000.

Brunhorn, Konrad; and Groschel, Heinz, to Brinkmann, Martin, Aktiengesellschaft. Method and apparatus for segregating strands of tobacco. 3,707,153, Cl. 131-22.00a.

Bryan, Don S. Prepared citrus fruit halves and method of making the same. 3,707,383, Cl. 99-100.000.

Bryan, George D., Jr., to Reynolds Metals Company. Method and apparatus for dispensing stacked and nested articles. 3,707,245, Cl. 221-251.000.

Bryce, Douglas Maxwell, to Boots Pure Drug Company Limited. Impregnated diaper. 3,707,148, Cl. 128-284.000.

Brynes, Howard. Inflatable and collapsible pylon. 3,707,320, Cl. 350-97.000.

Bucur, Victor: *See—*
Georgescu, Eugenia; Ghejan, Ion; Bucur, Victor; Mazare, Theodora; Zirna, Ion; Popescu, Elena Lygia; Budu, Adrian; Olteanu, Bujor; Filotti, Traian Mircea; and Barbul, Marius Aurel, 3,707,509.

Budgen, Leslie J., to British Oxygen Company, Limited, The. Vacuum pumps. 3,707,339, Cl. 418-13.000.

Budnowski, Manfred; and Lieske, Edgar, to Henkel & Cie G.m.b.H. Trifunctional isocyanates prepared from triglycidyl isocyanurate and diisocyanates. 3,707,527, Cl. 260-77.5nc.

Budu, Adrian: *See—*
Georgescu, Eugenia; Ghejan, Ion; Bucur, Victor; Mazare, Theodora; Zirna, Ion; Popescu, Elena Lygia; Budu, Adrian; Olteanu, Bujor; Filotti, Traian Mircea; and Barbul, Marius Aurel, 3,707,509.

Buell, Halsey W.: *See—*
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Build-All Fabricating, Inc.: *See—*
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Bump, Philip G., to Beloit Corporation. Replaceable vane insert for impeller. 3,707,267, Cl. 241-294.000.

Burkhardt, Max; Huber, Horst; and Chateau, Christian, to Concast AG and Concast Incorporated. Withdrawal and straightening apparatus for continuous casting. 3,707,184, Cl. 164-282.000.

Burns, William F.; and Martin, Robert B., to Petrolite Corporation. Process for clarifying an oil-solids contaminated aqueous stream. 3,707,464, Cl. 210-44.000.

Burtch, Alfred H.; and Buell, Halsey W., to Carborundum Company, The. Pad for disc sanders. 3,707,059, Cl. 51-358.000.

Bush, Stephen Frederick; Shires, Michael John; Johnson, Frank Williams; and Williams, Richard Anthony, to Imperial Chemical Industries Limited. Manufacture of adiponetrile. 3,707,547, Cl. 260-465.800.

Bushman, Ronald C., to Brown International Corporation. Apparatus for extracting citrus peel oil from whole fruit. 3,707,176, Cl. 146-3.00r.

Cahn, Arno: *See—*
Lamberti, Vincent; Lemaire, Henry; and Cahn, Arno, 3,707,511.

Cahoy, Roger P., to Gulf Research & Development Company. Preemergent chemical method of combatting unwanted vegetation. 3,707,366, Cl. 71-118.000.

Calcagno, Benedetto; Colombo, Paolo; and Livraghi, Giovanni, to Societa Italiana Resine S.p.A. Method for producing polymers of ethylene. 3,707,530, Cl. 260-94.90e.

Campbell, Kenneth C.; Robinson, Donald E.; Rhinehart, R. Russel; and Truesdale, Wade J., to Celanese Corporation. Process for start-up of fiber spinning solution. 3,707,588, Cl. 264-39.000.

Carborundum Company, The: *See—*
Burtch, Alfred H.; and Buell, Halsey W., 3,707,059.

Care, Inc.: *See—*
Lang, Jerry M., 3,707,128.

Cargill, Norman Allen, to Peripheral Dynamics Inc. Print hammer mechanism with magnetic reinforcement to cath hammer. 3,707,122, Cl. 101-93.00c.

Carlson, Clarence C.; and Duquaine, Gordon L., to Build-All Fabricating, Inc. Parts washer and method of solvent cleaning. 3,707,404, Cl. 134-10.000.

Carlson, Lowell D.: *See—*
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Carne, Michael; Smith, Kenneth Cecil; and Webber, David Arthur, to British Oxygen Company, Limited, The. Gas purification. 3,707,066, Cl. 55-88.000.

Carr, Walter J., Jr.: *See—*
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Carry, Robert: *See—*
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Carson, John Robert, to McNeil Laboratories, Inc. 5-Aroyl-2-(β-R_5-ethyl)-1-loweralkyl-pyrroles. 3,707,478, Cl. 260-326.300.

Carter, Clyde Thomas, to AMP Incorporated. Multi-contact electrical connector for flat cable. 3,707,696, Cl. 339.017.00f.

Carter, William J., to Westinghouse Electric Corporation. Corona discharge detecting apparatus including gatable amplifiers controlled by flip flop means. 3,707,673, Cl. 324-52.000.

Cartwright, James W.: *See—*
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Cartwright, Randie Velore, to Eastman Kodak Company. Apparatus for transferring a developed image from a photosensitive member to a receiver. 3,707,138, Cl. 118-637.000.

Cary Instruments: *See—*
George, Kenyon P.; and Hawes, Roland C., 3,707,331.

Cassidy, Harold G.; Wegner, Gerhard; and Nakabayashi, Nobuo, to Research Corporation. Quinonidiol intermediates for redox polymers. 3,707,488, Cl. 260-396.00r.

Castoldi, Fabrizio, to General Electric Information Systems, Italia S.p.A. Timing apparatus for high speed printer. 3,707,121, Cl. 101-93.00c.

Caterpillar Tractor Company: *See—*
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Costanza, John R.; and Eisen, Bruce M., 3,707,430.

Cerutti, Giovanni: *See—*
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Ceskoslovenska Akademie ved: *See—*

Romanuk, Miroslav; Sorm, Frantisek; and Slama, Karel, 3,707,491.
CGR Medical Corporation: *See—*
Koerner, Harry E.; and Horsey, William C., 3,707,630.
CGR Medican Corporation, mesne: *See—*
Colston, John Ronald, 3,707,629.
Chalfant, George A., to Trans Container Corporation. High speed molding of hollow plastic articles. 3,707,591, Cl. 264-97.000.
Champagnon, Jean Pierre, to Societe Nationale d'Etudes et de Construction de Moteurs d'Aviation. Device for detecting the instantaneous speed of rotation of a machine. 3,707,678, Cl. 324-160.000.
Champion International Corporation: *See—*
Vassiliades, Anthony E.; Shroff, Shrenik; and Nauman, Edward F., 3,707,514.
Chaplin, Merle P. Method of processing weeds. 3,707,070, Cl. 56-1.000.
Charlesworth, David, to Stella-Metafilters Limited. Method of preparing a pre-coat filter. 3,707,398, Cl. 117-72.000.
Charlton, Thomas; and Cation, Kenneth L., to Westinghouse Electric Corporation. Dynamoelectric machine with lint guard for terminals. 3,707,637, Cl. 310-71.000.
Chasen, Alvin M.: *See—*
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Chateau, Christian: *See—*
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Chevron Research Company: *See—*
Brown, Melancthen Starr, 3,707,557.
Woo, Gar Lok, 3,707,352.
Chiang, Peter T., to United States Steel Corporation. Wet-process phosphoric acid extraction including separating solvent from the extract by freezing solvent. 3,707,357, Cl. 23-312.00p.
Chiku, Takewo; Ninomiya, Kiyoshi; and Hayashi, Hiroaki, to Kabushiki Kaisha Toyota Chuo Kenkyusho. Reheating a beta alumina article in an alkali metal atmosphere to improve its permeability. 3,707,589, Cl. 264-82.000.
Chilton, Henry Thomas Joseph; and Lumley, Gwilym Ivor, to Monsanto Chemicals Limited. Electrolytic cell. 3,707,467, Cl. 204-250.000.
Chiu, Ying-Chech: *See—*
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Artz, Klaus; Ramanathan, Visvanathan; and Moser, Peter, 3,707,532.
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Cities Service Company: *See—*
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Cities Service Oil Company: *See—*
Milsom, Daniel, 3,707,498.
Clark, Thomas C. Slide viewer. 3,707,052, Cl. 40-63.00a.
Clary Corporation: *See—*
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Clementson, John Joseph; and Glen, Dennis Ward, to Imperial Chemical Industries, Limited. Dyeing of anodised aluminium. 3,707,394, Cl. 117-127.000.
Clemons, Victor G. Line move. 3,707,164, Cl. 137-344.000.
Clough, Philip J.; and Steeves, Robert W., to King-Seeley Thermos Co., mesne. Insulating material. 3,707,433, Cl. 161-143.000.
CMD Electronics, Inc.: *See—*
King, Ray J., 3,707,661.
Coatings Engineering Corporation: *See—*
Knott, James M., 3,707,033.
Coburn, Theodore R., to Bevis Industries, Inc. Method of treating tubular knitted fabrics. 3,707,419, Cl. 156-250.000.
Coffey, William F.; and Coley, Kenneth R., to Westinghouse Electric Corporation. Bus bar interconnection arrangement for stackable electrical panels. 3,707,652, Cl. 317-120.000.
Coffey, William F.; and Coley, Kenneth R., to Westinghouse Electric Corporation. Front cover assembly for electrical panels. 3,707,653, Cl. 317-120.000.
Cole, Edward L.; Hess, Howard V.; and Pomatti, Renato C., to Texaco Inc. Decomposable polyolefin agricultural mulch. 3,707,056, Cl. 47-9.000.
Cole, Peter Harold; and Vaughn, Richard. Electronic surveillance system. 3,707,711, Cl. 340-280.000.
Coley, Kenneth R.: *See—*
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Coffey, William F.; and Coley, Kenneth R., 3,707,653.
Colgate-Palmolive Company: *See—*
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Collette, Harold J.; and Grosser, Harry W. Snap trim molding. 3,707,061, Cl. 52-288.000.
Colletti, John B., to TRW Inc. Hydraulic controller including rotary valve. 3,707,167, Cl. 137-625.20y.
Colln, Reimer; and Frohberger, Paul-Ernst, to Farbenfabriken Bayer Aktiengesellschaft. Sulfonic acid cyanovinyl esters. 3,707,497, Cl. 260-456.00r.
Colombo, Paolo: *See—*
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Colorforms: *See—*
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Colston, John Ronald, to CGR Medican Corporation, mesne. Pneumatic power assist apparatus for spot film device. 3,707,629, Cl. 250-58.000.
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Comer, Glen S., Jr., to Caterpillar Tractor Company. Dual meter unit steering control. 3,707,200, Cl. 180-79.20r.
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Communications Satellite Corporation: *See—*
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Concast Incorporated: *See—*
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Congrove, Ronald L., to Royal Industris, Inc. T-edge cutter. 3,707,104, Cl. 83-513.000.
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Connor, James J. O., to Kimberly-Clark Corporation. Exploding of ammonia impregnated wood chips. 3,707,436, Cl. 162-9.000.
Conrad, Lucas J., to Reynolds, R. J., Tobacco Company. Method and apparatus for classifying articles. 3,707,228, Cl. 209-124.000.
Continental Oil Company: *See—*
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McDonald, Edward H.; and Banks, William P., 3,707,456.
Cook, Neal A.: *See—*
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Cook, Ralph J.; Moline, Clifford C.; and Schumann, Joseph M., to Products Research & Chemical Corporation. Means to inject a plastic into a cavity to produce a replica thereof. 3,707,146, Cl. 128-2.00r.
Cooper, Donald R.: *See—*
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Cooper, Paul Neville; and Tymons, Bryan John, to Stephen, R. A., & Company Limited. Dosimeter having two ionization chambers with different ratios of neutron to gamma radiation responses. 3,707,632, Cl. 250-83.3pd.
Cooper, Roy M., to Olin Corporation. Mercury cell having rotating anodes. 3,707,453, Cl. 204-212.000.
Copenhaver, John D., to Bethlehem Steel Corporation. Guide for wire drawing. 3,707,085, Cl. 72-291.000.
Corbin, Raymond Le Rae, to Johns-Manville Corporation. Reinforced fibrous felts for roofing shingle manufacture. 3,707,432, Cl. 161-141.000.
Cormier, Gerald R. Ski board training device. 3,707,283, Cl. 272-57.00b.
Costa, Armando; and Cerutti, Giovanni, to Olivetti, Ing. C., & C., S.p.A. High-speed tape perforator. 3,707,262, Cl. 234-119.00.
Costanza, John R.; and Eisen, Bruce M., to Celanese Corporation. Selectively dispersible sanitary structures. 3,707,430, Cl. 161-123.000.
Coury, Arthur J., to General Mills Chemicals, Inc. Organic isocyanate preparation. 3,707,496, Cl. 260-453.00p.
Covey, Rupert A.; Von Schmeling, Bogislav; and Crittendon, Charles E., to Uniroyal, Inc. Alkyl keto-alkyl sulfites and their uses. 3,707,363, Cl. 71-78.000.
Cowan, Wavell Frederick. Apparatus for testing the tensile strength of sheet material. 3,707,119, Cl. 73-95.000.
CP Conseiller en Packaging S.A.: *See—*
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Cramer, Robert L., to Bendix Corportion, The. Fail-safe liquid oxygen to gaseous oxygen conversion system. 3,707,078, Cl. 62-50.000.
Crawford, Douglas W. Variable choke valve. 3,707,161, Cl. 137-269.000.

Creger, Paul L.; and Neuklis, Winifred A., to Parks, Davis & Company. Aryloxypentane compounds. 3,707,566, Cl. 260-613.00d.
Crespel, Michel; and Valat, Christian, to Telefonaktiebolaget L M Ericsson. Arrangement for operators telephone set. 3,707,606, Cl. 179-81.00b.
CRI-DAN: *See—*
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Cripe, Maxwell L., to Bendix Corporation, The. Dual lever ratio brake activating apparatus. 3,707,075, Cl. 60-54.60p.
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Dan, Carlo, to Multra-Guard, Inc. Muting circuit for a security alarm system providing a sonic alert. 3,707,708, Cl. 340-213.200.
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Danieli, Luigi. Continuous offset line casting arrangement. 3,707,183, Cl. 164-281.000.
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Dapot, Martin H.; and Boulanger, Henry J., to Texas Instruments, Incorporated. Diaphragm pushbutton switch array for keyboards. 3,707,609, Cl. 200-5.00r.
Darmara, Falih N.: *See—*
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Dashnier, Merwin J.; and Diring, James A., to Alwin Manufacturing Company, Inc. Roll film dispenser. 3,707,251, Cl. 225-21.000.
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Reiner, Joel Russell; Preusch, William J.; and Davenport, William G., 3,707,130.
Davidson, Roger, to FMC Corporation. Method and apparatus for ultrasonically clarifying liquid. 3,707,230, Cl. 210-77.000.
Davies, Gwyn, to A. B. Electronic Components Limited. Alternate action mechanism for pushbutton switch with flat-headed latching pin. 3,707,610, Cl. 200-153.00j.
Davis, John A., Jr.; and Rhudy, John S., to Marathon Oil Company. Waterflooding by regulating the total hardness within the drive water. 3,707,190, Cl. 166-273.000.
Davis, John R.; and Platteschorre, Kornelis, to Oliver Machinery Company. Label machine indexing. 3,707,423, Cl. 156-517.000.
Davis, Lewis M.; and Warrick, Frank G., to Sealed Power Corporation. Loading sleeve for installing a piston and ring assembly into a cylinder bore. 3,707,027, Cl. 29-222.000.
Davis, Robert S.: *See—*
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Dawley, Daniel B.; and Johnson, Roy V., to Admiral Corporation. Cantilever refrigerator shelf. 3,707,317, Cl. 312-214.000.
De Angelis, Gerald George; and Hess, Hans-Jurgen Ernst, to Pfizer, Inc. Certain 4-amino-6-aryl-pyrimidines. 3,707,560, Cl. 260-256.50r.
De Baun, Kenneth W., to Servodyne Corporation. Universal filter holding frame and media assembly. 3,707,046, Cl. 55-483.000.
De Bretagne, Yves; and Manier, Francis, to Honeywell Inc. Setpoint and actual value indicator. 3,707,676, Cl. 324-157.000.
De Kinkelder, Petrus Johannes Alloysius. Automatic spray fluid control device. 3,707,305, Cl. 239-62.000.
de Koe, Oscar Bernardus Philomenus Rikkert: *See—*
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Goossens, Urbaan Paul Marguerite; Van Hoorn, Willem Lodewijk; and De Neve, Gerard Marie Jules, 3,707,645.
De Santis, G. William, to Essex Chemical Corporation. Polyurethane sealant-primer system isocyanate-reactive surface primer composition for polyurethane sealants. 3,707,521, Cl. 260-37.00n.
De Witt, David, to International Business Machines Corporation. Transistor comprising layers of silicon dioxide and silicon nitride. 3,707,656, Cl. 317-235.000.
De Witt, George A., to Cities Service Company. Apparatus for deturbulating turbulent solutions. 3,707,356, Cl. 23-285.000.
Deering Milliken Research Corporation: *See—*
Young, William O., Jr.; and Quattlebaum, Walter J., 3,707,420.
Deichen, Robert John. Optical reflector. 3,707,626, Cl. 240-103.00r.
Del Mar Engineering Laboratories: *See—*
Sanctuary, Clifford, 3,707,699.
Della Casa, Angelo: *See—*
Markert, Juergen; Eckert, Peter; and Della Casa, Angelo, 3,707,346.
Dellehim, John L., to International Business Machines Corporation. Program execution tracing system improvement. 3,707,725, Cl. 444-1.000.
Denki Onkyo Company Limited: *See—*
Inoue, Keiji, 3,707,636.
Denver Research Institute: *See—*
Kottenstette, James P., 3,707,649.
Derr, Donald B.; Neff, Gordon W.; and Sambucetti, Carlos J., to International Business Machines Corporation. Measuring system. 3,707,455, Cl. 204-195.00p.
Deschenes, Pierre A.; and Villeret, Michel, to Universite de Sherbrooke. Converter from delta modulation to pulse code modulation. 3,707,712, Cl. 340-347.0dd.
Deutsche Gold- und Silber-Scheideanstalt vormal Roessler: *See—*
Reinhardt, Helmut; Trebinger, Karl; and Kallrath, Gottfried, 3,707,449.
Schreyer, Gerd; Troger, Jurgen; Weigert, Wolfgang; and Weiberg, Otto, 3,707,444.
Dexter, Martin: *See—*
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Steinberg, David H.; and Dexter, Martin, 3,707,543.
Diamond Shamrock Corporation: *See—*
Blomfield, Rodney A., 3,707,508.
Loftfield, Richard E.; and Laub, Henry W., 3,707,454.
Diaz, Richard A.; and Szabo, Andras I., to Westinghouse Electric Corporation. High resolution pulse rate modulated digital-to-analog converter system. 3,707,713, Cl. 340-347.0da.
Dickinson, William H.: *See—*
Mucka, John R.; and Dickinson, William H., 3,707,064.
Diehl, Alan. Tie down clamp. 3,707,022, Cl. 24-115.00j.
Diehr, Hans-Joachim: *See—*
Schliebs, Reinhard; Uhlig, Konrad; Oertel, Gunter; and Diehr, Hans-Joachim, 3,707,587.
Dietrick, Gerald P. Gas scrubbing device. 3,707,067, Cl. 55-228.000.
Digitronics Corporation: *See—*
Shapiro, Marvin, 3,707,619.
Diring, James A.: *See—*
Dashnier, Merwin J.; and Diring, James A., 3,707,251.
Dittrich, Uwe-Bernd: *See—*
Uhlenhaut, Rudolf; Wieland, Egon; and Dittrich, Uwe-Bernd, 3,707,095.
Dixon, Roy H. Oil filter in crankcase pan. 3,707,202, Cl. 185-6.240.
Dobbelstein, Arnold; Hille, Hans-Dieter; and Holfort, Horst, to Herberts, Kurt, Dr., & Co. vorm Otto Louis Herberts. Electrical conductors coated with polyesterimides from dicyano diamide-hydrazine reaction products. 3,707,403, Cl. 117-218.000.
Dobinson, Bryan; and Stark, Bernard Peter, to Ciba-Geigy AG. Esters of thioglycollic and mercapto propionic acid. 3,707,552, Cl. 260-481.00r.
Doehnert, Donald F.: *See—*
Bemmels, Cyrus W.; and Doehnert, Donald F., 3,707,518.
Dollhausen, Manfred: *See—*
Oertel, Gunter; Holtschmidt, Hans; Dollhausen, Manfred; and Bock, Eugen, 3,707,486.
Domin, Daniel J.; and Duvall, Thomas E., to TMA Company. Cabinet-mounted speaker system. 3,707,201, Cl. 181-31.00b.
Dotter, Berton E., Jr., to GTE Automatic Electric Laboratories Incorporated. Timing recovery circuit for use in modified duobinary transmission system. 3,707,683, Cl. 328-139.000.
Dow Chemical Company, The: *See—*
Palfey, Albert J., 3,707,127.
Wiggins, Glenn C.; Kreh, Marvin J.; Davis, Robert S.; and Stevenson, Fred, 3,707,590.
Driscoll, Gary L., to Sun Research and Development Company. Phosphorus compound promoted oligomerization of isobutene. 3,707,582, Cl. 260-683.15b.
Drutchas, Gilbert H.; Atkin, Rupert L.; and Shaw, Garrett D., to TRW Inc. Four wheel skid control system with dynamic proportioning. 3,707,312, Cl. 303-21.00f.
Du Pont de Nemours, E. I., & Company: *See—*
Vasta, Joseph A., 3,707,578.
Du Pont de Nemours, E. I., and Company: *See—*
Blackwell, John; and Wilks, Sherlock Edward, 3,707,348.
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Lee, Kyu Tai; and Whitney, Joel G., 3,707,551.
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Van Stappen, Albert Louis; Schwarz, Karl; and Weber, Hans (said Van Steppen and said Schwarz assor. to), 3,707,376.
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Walus, Aloysius N., 3,707,516.
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Du Rocher, Gideon A., to Essex International, Inc. Thermally sensitive circuit control apparatus. 3,707,694, Cl. 337-139.000.
Dullinger, Karl, to Kronseder, Hermann. Method and apparatus for foil wrapping bottle necks. 3,707,417, Cl. 156-212.000.
Duncan, David M., to Communications Transistor Corporation. Method and apparatus for measuring R. F. current gain of a transistor. 3,707,677, Cl. 324-158.00t.

Dunn, George L.; and Hoover, John R. E., to Smith Kline & French Laboratories. Nitrothiophene dicarboxamides. 3,707,480, Cl. 260-332.20c.

Dunn, Nelson H.: *See—*
Alger, Martin J., Jr.; and Dunn, Nelson H., 3,707,034.
Alger, Martin J., Jr.; and Dunn, Nelson H., 3,707,035.

Dunning, Herbert N.; Strommer, Palmer K.; and Vanhulle, Glenn J., to General Mills, Inc. Method and apparatus of texturing protein. 3,707,380, Cl. 99-17.000.

Duquaine, Gordon L.: *See—*
Carlson, Clarence C.; and Duquaine, Gordon L., 3,707,404.

Durand, Francois. Device for transmitting motion. 3,707,212, Cl. 192-150.000.

Dussardier, Claude J., to Norgren, C. A., Co. Lubricator sight feed dome. 3,707,204, Cl. 184-55.00a.

Duvall, Thomas E.: *See—*
Domin, Daniel J.; and Duvall, Thomas E., 3,707,201.

Dymo Industries, Inc.: *See—*
Morley, Ronald I.; Biernat, Raymond W.; and Smidt-Hayer, Arnold J., 3,707,435.

Dynamit Nobel AG: *See—*
Gawlick, Heinz; Marondel, Gunther; Siegelin, Werner; and Ratz, Heinz, 3,707,411.

Dynamit Nobel Aktiengesellschaft: *See—*
Stephan, Rudolf; and Richtzenhain, Hermann, 3,707,574.

Eastman, James M., to Bendix Corporation, The. Fluid pressure ratio sensing device. 3,707,159, Cl. 137-81.500.

Eastman Kodak Company: *See—*
Brown, Morris E., 3,707,599.
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Foote, James C., Jr., 3,707,221.
Martinson, Lawrence E.; Rauner, Frederick J.; and Gilson, Richard E., 3,707,373.
Moulton, Richard D.; and Schieven, Stanley R., 3,707,117.
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Stoneham, Jeffrey R.; and Wood, Lawrence M., 3,707,118.
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Ebara Infilco Kabushiki Kaisha: *See—*
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Eckert, George W., to Texaco Inc. Smoke suppressant fuel composition. 3,707,360, Cl. 44-51.000.

Eckert, Peter: *See—*
Markert, Juergen; Eckert, Peter; and Della Casa, Angelo, 3,707,346.

Edlefsen, Thomas B. Racket with replaceable string frame. 3,707,288, Cl. 273-73.001.

Edwards, John A.; and Ackrell, Jack, to Syntex Corporation. Process for preparing 1,3,5(10),6,8-pentaene steroids and intermediates. 3,707,490, Cl. 260-397.450.

Eisen, Bruce M.: *See—*
Costanza, John R.; and Eisen, Bruce M., 3,707,430.

Eisenlohr, Karl Heinz: *See—*
Muller, Eckart; Eisenlohr, Karl Heinz; and Klein, Helmut, 3,707,575.

Eisenwerk Weserhutte A.G.: *See—*
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Electronic Arrays, Inc.: *See—*
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Elevator Equipment Company: *See—*
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Elitex, Zavody textilnihl strojirenstvi: *See—*
Svoboda, Vladimir; and Vajda, Andrej, 3,707,083.

Ellis, Willard H.: *See—*
Bokros, Jack C.; and Ellis, Willard H., 3,707,006.

Elmar, Reinwald; and Galinke, Joachim, to Henkel & Cie G.m.b.H. Clarification of aqueous suspensions with oxyaminated polyacrylamide flocculating agents. 3,707,465, Cl. 210-52.000.

Elsasser, Horst. Chain lock. 3,707,072, Cl. 59-35.000.

Eltschinger, Ernest: *See—*
Hausler, Thomas; Werren, Heinz; and Eltschinger, Ernest, 3,707,274.

Elvrum, Don S. Curing and pretannage of hides. 3,707,349, Cl. 8-94.150.

Elvrum, Don S. Curing and pretannage of hides. 3,707,350, Cl. 8-94.180.

Engle, Thomas H., to General Signal Corporation. Hydraulically operated hand brake-service brake system for railway cars. 3,707,309, Cl. 303-13.000.

English Electric Valve Company Limited: *See—*
Pickering, Alan Hugh, 3,707,639.

Enomoto, Satoru; Wada, Hisayuki; Fujioka, Mikio; and Koguro, Masao, to Kureha Kagaku Kogyo Kabushiki Kaisha. Air-curing resin composition. 3,707,387, Cl. 106-265.000.

Epic Metals Corporation: *See—*
King, Richard E.; and Pfaff, Richard C., 3,707,088.

Erdman, Robert J., to Keithley Instruments, Inc. Variable low resistance circuit with superconducting shunts. 3,707,670, Cl. 323-96.000.

Erdolchemile Gesellschaft mit beschrankter Haftung: *See—*
Muller, Hans Joachim; and Bruckner, Horst, 3,707,065.

E.R.E. Laboratory, Inc.: *See—*
Brill, Henry L.; and Stanford, James A., 3,707,253.

Erickson, Elwyn J. Dispensing gun for wallboard tape and joint compound. 3,707,427, Cl. 156-575.000.

Erkers, Nils Arne. Disposable brush-like cleaning utensils, particularly intended for dental hygiene purposes. 3,707,013, Cl. 15-167.00r.

Esch, Fred H., to Communications Satellite Corporation. Novel battery discharge sensor and control. 3,707,664, Cl. 320-18.000.

Esposito, Raymond. Concealed holster. 3,707,250, Cl. 224-2.00b.

Essex Chemical Corporation: *See—*
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Essex International, Inc.: *See—*
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Esso Production Research Company: *See—*
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Esso Research and Engineering Company: *See—*
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Ethyl Corporation: *See—*
Jarema, Chester P.; and Niebylski, Leonard M., 3,707,401.

Eward, Jerome T., to Bendix Corporation, The. Telescoping piston means for hydraulic brake booster. 3,707,112, Cl. 91-376.000.

Ewell, Edgar C., to Modern Mill, Inc. Speed regulating device for material discharge apparatus. 3,707,246, Cl. 222-134.000.

Faconti, Victor, Jr.; and Booth, William C., to Singer Company, The, mesne. Switching device and associated visual display for training apparatus. 3,707,044, Cl. 35-12.000.

Failli, Amedeo; and Gotz, Manfred, to American Home Products Corporation. Derivatives of imidazolidin-2-ones and-2-thione. 3,707,472, Cl. 260-293.700.

Familant, Stanley G., to Honeywell Inc. Web tensioner for high speed printer. 3,707,215, Cl. 197-133.00p.

Farbenfabriken Bayer Aktiengesellschaft: *See—*
Colln, Reimer; and Frohberger, Paul-Ernst, 3,707,497.
Schliebs, Reinhard; Uhlig, Konrad; Oertel, Gunter; and Diehr, Hans-Joachim, 3,707,587.

Federal-Huber Corporation: *See—*
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Feightner, Lewis Clark: *See—*
Phillips, Delbert L.; and Feightner, Lewis Clark, 3,707,614.

Fellin, Jack J.; and Fellin, Karin E. Automotive seat pad for use by children. 3,707,008, Cl. 5-345.000.

Fellin, Karin E.: *See—*
Fellin, Jack J.; and Fellin, Karin E., 3,707,008.

Ferret, Pierre: *See—*
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Fiat Societa per Azioni: *See—*
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Fiber Industries, Inc.: *See—*
Simons, Frank Holmes, 3,707,522.

Field, Greg A., to S and R Associates, Inc. Racing rules correlator. 3,707,051, Cl. 40-70.000.

Files, Victor A., to Xerox Corporation. Photosensitive element comprising a polymer matrix including styrene, auramine O, and a peroxide and the use thereof in volume recording. 3,707,371, Cl. 96-27.00h.

Filotti, Traian Mircea: *See—*
Georgescu, Eugenia; Ghejan, Ion; Bucur, Victor; Mazare, Theodora; Zirna, Ion; Popescu, Elena Lygia; Budu, Adrian; Olteanu, Bujor; Filotti, Traian Mircea; and Barbul, Marius Aurel, 3,707,509.

Filz, William F., to North Pacific Canners & Packers, Inc. Blanching corn by internal fluid injection. 3,707,384, Cl. 99-103.000.

Fischer, Adolf: *See—*
Becke, Friedrich; Fischer, Adolf; and Hagen, Helmut, 3,707,364.

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Fluorodynamics, Inc.: *See—*
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FMC Corporation: *See—*
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Fontijn, Wilhelmus J.; and Van Drunen, Korstiaan J. M., to Akzona Incorporated. Apparatus for making multifilament yarns. 3,707,341, Cl. 425-198.000.

Foote, James C., Jr., to Eastman Kodak Company. Article diverting mechanism. 3,707,221, Cl. 198-31.0aa.

Ford Motor Company: *See—*
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Foster Wheeler Corporation: *See—*
Zorrilla, Eduardo P.; and Long, William P., 3,707,186.

Fox, John H., Jr.: *See—*
Wilson, Calvin L.; and Fox, John H., Jr., 3,707,028.

Francis, Thomas V.; and Borchers, Edward L., to Superior Aluminum Products, Inc. Simplified relatively heavy duty railing construction. 3,707,276, Cl. 256-22.000.

Frantzen, Karl H.: *See—*
Hirt, Thomas J.; Kissinger, Richard D.; Kendall, John P.; and Frantzen, Karl H., 3,707,644.

Frederick, Gary L., to Garrett Corporation, The. Temperature compensating fluidic circuit. 3,707,440, Cl. 137-81.500.

Freedman, Jules, to Colgate-Palmolive Company. 3-Alkanol derivatives of 4H [1] benzopyrano [3,4-d]isoxazoles. 3,707,476, Cl. 260-307.00h.

Friedrichs, Ingo, to Eisenwerk Weserhutte A.G. Hydrostatically balanced plate valve with low flow resistance. 3,707,169, Cl. 137-625.210.

Frielinghaus, Klaus H., to General Signal Corporation. Boat berthing monitor incorporating sonar and doppler radar techniques. 3,707,717, Cl. 343-6.000.

Frohberger, Paul-Ernst: *See—*
Colln, Reimer; and Frohberger, Paul-Ernst, 3,707,497.

Frydenberg, Donald V., to Clary Corporation. Door frame construction. 3,707,057, Cl. 49-505.000.

Fryer, Rodney Ian; and Sternbach, Leo Henryk, to Hoffmann-La Roche Inc. 2-Substituted-p-nitro-anilines. 3,707,473, Cl. 260-293.760.

Fuji Photo Film Co., Ltd.: *See—*
Fukushima, Osamu; Sato, Masamichi; and Matsumoto, Seiji, 3,707,139.
Hayakawa, Yoshihide; and Noguchi, Yasuhiro, 3,707,379.
Honjo, Satoru; Taguchi, Seiichi; Takimoto, Masaaki; and Miyatsuka, Hajime, 3,707,392.
Ohi, Reiichi; Kondo, Tokiharu; Shirasu, Kazuo; and Ono, Yoshiaki, 3,707,375.
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Fujioka, Mikio: *See—*
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Fujirawa, Cliff Y., to North American Rockwell Corporation. Certain organic compounds containing beryllium and boron. 3,707,564, Cl. 260-606.50b.

Fukada, Shunsuke; and Nakanishi, Toru, to Toray Industries, Inc. Apparatus and method for manufacturing continuous filaments from synthetic polymers. 3,707,593, Cl. 264-210.00f.

Fukushima, Osamu; Sato, Masamichi; and Matsumoto, Seiji, to Fuji Photo Film Co., Ltd. Liquid type electrophotography developing apparatus. 3,707,139, Cl. 118-637.000.

Furlong, Louis E.: *See—*
Zimmerman, Abraham A.; Furlong, Louis E.; and Shannon, Hugh F., 3,707,362.

Furuno, Nobuo: *See—*
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G. D. Societain Accomandita Semplice di Enzo Seragnoli E. Ariosto Seragnoli: *See—*
Seragnoli, Ariosoto, 3,707,219.

Gabbard, O. Gener; and Kaul, Pradman, to Communication Satellite Corporation. Digital differential pulse code modulation system. 3,707,680, Cl. 325-38.00b.

Gagnon, Donald W., to Owens-Illinois, Inc: Process for providing uniform organopolysiloxane coatings on polycarbonate and acrylic surfaces. 3,707,397, Cl. 117-72.000.

Gainesville Machine Company, Inc.: *See—*
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Galinke, Joachim: *See—*
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Reinwald, Elmar; and Galinke, Joachim, 3,707,466.

Galis, Leon A.; and Valentine, Donald E., to AMBAC Industries, Inc. Fuel control device for fuel injection pump governor. 3,707,144, Cl. 123-179.00l.

Gannon, John Allister; and Tracton, Arthur Allen, to Ciba-Geigy Corporation. Resins produced from the reaction of epoxides and dimethylol-propionic acid. 3,707,526, Cl. 260-47.0ea.

Garcia, Felipe G.: *See—*
Bahder, George; and Garcia, Felipe G., 3,707,674.

Garner, Norman E., to Esso Production Research Company. Method for installation of a riser on an offshore structure. 3,707,077, Cl. 61-72.300.

Garrett Corporation, The: *See—*
Frederick, Gary L., 3,707,440.

Gatsis, John G., to Universal Oil Products Company. Hydrocracking process using a coal-derived ash. 3,707,461, Cl. 208-111.000.

Gatti, Recco: *See—*
Stradella, Giuseppe; Stradella, Umberto; Daniele, Giuliano; and Gatti, Recco, 3,707,089.

Gawlick, Heinz; Marondel, Gunther; Siegelin, Werner; and Ratz, Heinz, to Dynamit Nobel AG. Primer composition for solid propellant charges. 3,707,411, Cl. 149-14.000.

Gawron, Stanley A., to Addressograph-Multigraph Corporation. Automatic toner concentrate detector and control device. 3,707,134, Cl. 118-7.000.

Gaydell, Inc.: *See—*
Maynard, Edmund M., 3,707,015.

Geffe, Philip R., to Westinghouse Electric Corporation. Q-invariant active filters. 3,707,685, Cl. 330-21.000.

Geiger, Paul B.: *See—*
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Geigy Chemical Corporation: *See—*
Weis, Claus Dieter; and Rumpf, Jurg, 3,707,494.

Gelineau, Leodore H., Sr.; and Moore, Gordon A. Mail box with remote signal transmitter. 3,707,260, Cl. 232-36.000.

Genca, Samuel R.: *See—*
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General American Transportation Corporation: *See—*
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General Cable Corporation: *See—*
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General Electric Company: *See—*
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General Mills Chemicals, Inc.: *See—*
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General Mills, Inc.: *See—*
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General Signal Corporation: *See—*
Alger, Martin J., Jr.; and Dunn, Nelson H., 3,707,034.
Alger, Martin J., Jr.; and Dunn, Nelson H., 3,707,035.
Engle, Thomas H., 3,707,309.
Frielinghaus, Klaus H., 3,707,717.

Gentit, William F.; and Jaffe, Fred, to Stauffer Chemical Company. Hydraulic fluids containing certain quaternary phosphonium salts of phosphorus acids. 3,707,501, Cl. 252-78.000.

George, Kenyon P.; and Hawes, Roland C., to Cary Instruments. Concentration difference cell. 3,707,331, Cl. 356-246.000.

Georgescu, Eugenia; Ghejan, Ion; Bucur, Victor; Mazare, Theodora; Zirna, Ion; Popescu, Elena Lygia; Budu, Adrian; Olteanu, Bujor; Filotti, Traian Mircea; and Barbul, Marius Aurel, to Institutul de Cercetari Pentru Prelucrarea Titeiului. Process for the prearation of a catalyst of the platinum/alumina type for reforming aromatization and isomerization. 3,707,509, Cl. 252-441.000.

Gerest, Marcel A. M., to Societe a Responsabilite Limitee dite Altic. Filament tensioning apparatus. 3,707,269, Cl. 242-155.00r.

Gerich, Anton J.; Bletz, Howard W.; and Wilfing, Merle P. Recreational vehicle. 3,707,199, Cl. 180-5.000.

Gettys Manufacturing Company, Incorporated: *See—*
Hoffman, George A., 3,707,662.

Ghejan, Ion: *See—*
Georgescu, Eugenia; Ghejan, Ion; Bucur, Victor; Mazare, Theodora; Zirna, Ion; Popescu, Elena Lygia; Budu, Adrian; Olteanu, Bujor; Filotti, Traian Mircea; and Barbul, Marius Aurel, 3,707,509.

Giambrone, Harry Joseph, to Baxter Laboratories, Inc. Elastic gloves. 3,707,005, Cl. 2-163.000.

Gibson, George William, to Otis Elevator Company. Elevator car with elements combining both structural and wiring housing functions. 3,707,205, Cl. 187-1.00r.

Giesemann, Rolf: *See—*
Weber, Karl-Heinz; Zeile, Karl; Danneberg, Peter; Giesemann, Rolf; and Hauptmann, Heinz, 3,707,539.

Gilson, Richard E.: *See—*
Martinson, Lawrence E.; Rauner, Frederick J.; and Gilson, Richard E., 3,707,373.

Gladding, Edward K.; and Nyce, Jack L., to Du Pont de Nemours, E. I., and Company. Elastomeric vinylidene fluoride polymers with 55-95 percent non-ionic end groups. 3,707,529, Cl. 260-80.770.

Glaser, Peter S.; and Goldberg, Jack, to Electronic Arrays, Inc. Strip printer. 3,707,602, Cl. 178-30.000.

Glen, Dennis Ward: *See—*
Clementson, John Joseph; and Glen, Dennis Ward, 3,707,394.

Goble, Ralph W., to Phonocopy, Inc. Facsimile transceiver. 3,707,601, Cl. 178-7.600.

Goffe, William L., to Xerox Corporation. Imaging process. 3,707,391, Cl. 117-17.500.

Goins, William C., Jr.; and McGlothlin, Bruce B., to Gulf Research & Development Company. Two-stage injection of acid-producing chemicals for stimulating wells. 3,707,192, Cl. 166-300.000.

Gold, Nicholas, to Polaroid Corporation. Film cartridge for photographic cameras and method of assembly. 3,707,116, Cl. 95-19.000.

Goldberg, Jack: *See—*
Glaser, Peter S.; and Goldberg, Jack, 3,707,602.

Golden, Henry; and Genca, Samuel R., to Tray-X Corporation. Multi-use paint tray. 3,707,242, Cl. 220-1.00r.

Golladay, Arthur D.; and Moran, Kevin E., to Hercules Incorporated. Filament winding. 3,707,415, Cl. 156-169.000.

Goodfellow, Robert D., to Subterranean Tools, Inc. Rotary cutter for excavation, especially for use with raise boring and tunnel boring machines. 3,707,315, Cl. 308-8.200.

Goodman, H., & Sons, Inc.: *See—*
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Goodman, Harold S. Means for mixing and centrifugation. 3,707,354, Cl. 23-253.00r.

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Kaiser, Henry J.; deceased (by Kaiser, Agnes; heir). Golf club and ball warmer. 3,707,279, Cl. 263-2.00r.

Kaiser, Willard D.: *See—*
Ridgway, Merrill L.; and Kaiser, Willard D., 3,707,255.

Kallrath, Gottfried: *See—*
Reinhardt, Helmut; Trebinger, Karl; and Kallrath, Gottfried, 3,707,449.

Kannegiesser, Herbert, to Kannegiesser Maschinenfabrik Gesellschaft mit beschrankter Haftung. Sublimatory transfer dyeing in vented foil packet with release of trapped steam. 3,707,345, Cl. 8-2.500.

Kannegiesser Maschinenfabrik Gesellschaft mit beschrankter Haftung: *See—*
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Kanngiesser, Karl-Werner; and Lips, Hans Peter, to Aktiengesellschaft Brown, Boveri & Cie. Method of regulating high voltage direct current transmission system operating with several converter stations connected in a multipoint network. 3,707,669, Cl. 321-1.000.

Kapitan, Christine S.: *See—*
Kapitan, John R.; and Kapitan, Christine S., 3,707,004.

Kapitan, John R.; and Kapitan, Christine S. Ballistic resistant protective guard. 3,707,004, Cl. 2-2.500.

Karger, Wolfgang: *See—*
Adler, Karl; and Karger, Wolfgang, 3,707,710.

Kasecky, Joseph J.; and Thompson, Charles W., to Allegheny Ludlum Industries, Inc. Automatic tensioning device for multiple line strip. 3,707,252, Cl. 226-25.000.

Kaufman, Harold A.; and Napier, Roger P., to Mobil Oil Corporation. Synergistic herbicide combination of cyclohexenone dimers with herbicides. 3,707,365, Cl. 71-93.000.

Kaul, Pradman: *See—*
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Kawahara, Tomosaburo: *See—*
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Kawai, Hitoshi: *See—*
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Kawashima, Yoshichi, to Nippondenso Kabushiki Kaisha. Constant effective voltage power source circuit. 3,707,635, Cl. 307-297.000.

Kawashimo, Kensuke; Tsukagoshi, Kazuo; and Itasaka, Tokio, to Ebara Infilco Kabushiki Kaisha. Method and apparatus for disposing of refuse. 3,707,129, Cl. 110-15.000.

Kefalas, John H., to Honeywell Information Systems, Inc. Multiple state memory. 3,707,706, Cl. 340-174.0cb.

Keithley Instruments, Inc.: *See—*
Erdman, Robert J., 3,707,670.

Kelly, Gerald R. Article retrieving apparatus. 3,707,268, Cl. 242-54.000.

Kem Krest Products Company: *See—*
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Kendall, John George Leonard; and Ladkin, Derek, to Bitumen Industries Limited. Connecting apparatus. 3,707,421, Cl. 156-380.000.

Kendall, John P.: *See—*
Hirt, Thomas J.; Kissinger, Richard D.; Kendall, John P.; and Frantzen, Karl H., 3,707,644.

Kenny, Terrence G., to Lever Brothers Company. Stabilized liquid detergent composition. 3,707,503, Cl. 252-117.000.

Kern, Charles R. Transfer tool. 3,707,098, Cl. 81-9.200.

Kerr Glass Manufacturing Corporation, mesne: *See—*
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Kessler, Hans-Joachim: *See—*
Gutsche, Klaus; Albrecht, Rudolf; Kessler, Hans-Joachim; and Schroder, Eberhard, 3,707,485.

Kessler, Lawrence W.; and Sawyer, Samuel P., to Zenith Radio Corporation. Liquid crystal devices and systems for ultrasonic imaging. 3,707,323, Cl. 350-161.000.

Kewanee Oil Company: *See—*
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Keystone Industries, Inc.: *See—*
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Nester, Francis M., 3,707,126.

Kierstead, Richard Wightman, to Hoffmann-La Roche Inc. 4-Chloro-4,6-diene-6-halo or lower alkyl steroids. 3,707,537, Cl. 260-239.55c.

Kieslinger, Georges: *See—*
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King, Ray J., to CMD Electronics, Inc. Electrical device motor protective means. 3,707,661, Cl. 318-484.000.

King, Richard E.; and Pfaff, Richard C., to Epic Metals Corporation. Forming hollow ribs in metal sheet. 3,707,088, Cl. 72-178.000.

King-Seeley Thermas Co.: *See—*
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King-Seeley Thermos Co., mesne: *See—*
Clough, Philip J.; and Steeves, Robert W., 3,707,433.

Kinnaird, Robert N., Jr., to Mobil Oil Corporation. Asphaltic compositions. 3,707,388, Cl. 106-273.000.

Kishimoto, Akihiko: *See—*

Okamoto, Takehiko; Inoue, Masakazu; Kishimoto, Akihiko; and Sueyoshi, Tadahiro, 3,707,585.

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Kitamura, Tetsuo; and Tamai, Akira, to Mitsubishi Jukogyo Kabushiki Kaisha. Headstock balancing construction for machine tools. 3,707,333, Cl. 408-235.000.

Kitson, Joshua Wilson, to U.S. Philips Corporation. Refrigerator cabinets. 3,707,243, Cl. 220-9.00f.

Kittleman, Edmund T.: *See—*
Gray, Roy A.; Kittleman, Edmund T.; and Ray, Gardner C., 3,707,512.

Klein, David Arthur, to Du Pont de Nemours, E. I., and Company. Process for preparing dodecanedinitrile. 3,707,546, Cl. 260-465.200.

Klein, Helmut: *See—*
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Klinger, Robert, Kunststoff Spritzgusswer, Firma: *See—*
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Knight, Bruce L., to Marathon Oil Company. Flooding method using salt-insensitive polymers for better mobility control. 3,707,187, Cl. 166-246.000.

Knittle, Raymond C.: *See—*
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Knott, James M., to Coatings Engineering Corporation. Manufacturing method for multi-element structures. 3,707,033, Cl. 29-460.000.

Kobayashi, Fukashi: *See—*
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Kobayashi, Shiro, to Paloma Kogyo Kabushiki Kaisha. Heat-preserving boiler. 3,707,142, Cl. 122-17.000.

Koerner, Harry E.; and Horsey, William C., to CGR Medical Corporation. Pneumatic power assist apparatus for spot film device. 3,707,630, Cl. 250-58.000.

Koguro, Masao: *See—*
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Kohn, Gustave K.: *See—*
Brown, Melancthen Starr, 3,707,557.

Koivusal, Mauno. Device for closing, holding open and holding closed a door or equivalent, in particular one for doors with concealed hinges. 3,707,014, Cl. 16-52.000.

Kollsman Instrument Corporation: *See—*
Artelt, Herbert C., Jr., 3,707,424.

Kondo, Kishichiro: *See—*
Yamaguchi, Nario; Shimizu, Sakae; Tubuko, Kazuo; Kondo, Kishichiro; and Iwata, Hiroo, 3,707,402.

Kondo, Tokiharu: *See—*
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Kondo, Toshio, to Aisin Seiki Kabushiki Kaisha. Spot disc brakes for vehicles. 3,707,207, Cl. 188-71.500.

Kopczynski, John F. Plug assembling machine. 3,707,026, Cl. 29-203.00d.

Kostas, George J., to Continental Oil Company. Apparatus for plating heat-resistant articles. 3,707,136, Cl. 118-303.000.

Kottenstette, James P., to Denver Research Institute. Intermittent arc illumination source. 3,707,649, Cl. 315-239.000.

Kraemer, Stefan; and Seidl, Alois, to Wasag Chemie GmbH. Method of producing flame and fire resistant compositions containing siliceous materials. 3,707,385, Cl. 106-15.0fp.

Kraft, Innsbruck: *See—*
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Kraft, Joseph K.: *See—*
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Krechmery, Rc ger L.; and Seabeck, Lee A., to Bailey Meter Company. Comparing the relative magnitudes of first and second D. C. signals. 3,707,675, Cl. 324-140.00d.

Kreevoy, Maurice M.: *See—*
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Kreh, Marvin J.: *See—*
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Kristoffersson, Harry; and Henriksson, Sune Torsten. Methods in mining by sublevel caving. 3,707,307, Cl. 299-12.000.

Kronseder, Hermann: *See—*
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Krutz, Ronald L.; and Villella, Thomas J. Successive addition utilizing a bistable latch. 3,707,621, Cl. 235-174.000.

Kubiatowicz, David O., to Minnesota Mining and Manufacturing Company. Radioactive labeling kit. 3,707,353, Cl. 23-230.00b.

Kuhn, Klaus, to U.S. Philips Corporation. Circuit arrangement for surpressing the chrominance subcarrier in PAL signal. 3,707,596, Cl. 178-5.40p.

Kunde, Joachim: *See—*
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Kuno, Syozo, to Aisin Seiki Kabushiki Kaisha. Friction disc clutch for vehicles. 3,707,211, Cl. 192-113.00a.

Kureha Kagaku Kogyo Kabushiki Kaisha: *See—*
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Kurz, Fredrik Wilhelm Anton. Bonding or impregnating composition. 3,707,386, Cl. 106-84.000.

Kwikform Limited: *See—*
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Kyllonen, Allen W., to Westinghouse Air Brake Company. Slack adjuster mechanism fo. tread brake apparatus. 3,707,208, Cl. 188-202.000.

La France, Norman: *See—*
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LaeVosan-Gesellschaft Chem. Pharm. Industrie Franck & Dr. Freudl: *See—*
Nitsch, Ernst; and Muhlbock, Siegfried, 3,707,534.

LaFont, Guy, to Schlumberger Technology Corporation. Telemetry system incorporating synchronization of receiver with transmitter. 3,707,700, Cl. 340-18.000.

Laimins, Eric, to BLH Electronics, Inc. Wear sleeve-transducer combination for aircraft landing gear. 3,707,270, Cl. 244-103.00r.

Lajiness, Thomas A., to Johnson, S. C., & Son, Inc. Oxazolidine and tetrahydrooxazine compounds having insect repellent activity. 3,707,541, Cl. 260-244.00r.

Laliberte, Real, to Ayerst, McKenna and Harrison Ltd. Carbamate derivatives of 2H-pyran-3(6H)-one. 3,707,482, Cl. 260-345.800.

Lamberti, Vincent; Lemaire, Henry; and Cahn, Arno, to Lever Brothers Company. Anionic detergent compositions containing foam boosting succinic acid derivatives. 3,707,511, Cl. 252-546.000.

Landrum, Porter, 25% to Landrum, Porter, Jr., 20% to McMorries, Edward Y., 10% to Timberlake, Marshall, Mrs., 10% to Null, William, Mrs. and 10% to McMorries, Willie Mae, Mrs. Carburetor for internal combustion engine. 3,707,278, Cl. 261-62.000.

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Lane, Kenneth R., to Le Voy's, Inc. Disposable scrub brush. 3,707,012, Cl. 15-104.930.

Lang, Jerry M., to Care, Inc. Anti-pollution solid waste burning incinerator. 3,707,128, Cl. 110-8.00a.

Lanmon, C. P., II, to Schlumberger Technology Corporation. Apparatus for perforating earth formations. 3,707,195, Cl. 175-4.520.

Larre, Frank J. Coin operated manually selective tape cartridge player. 3,707,213, Cl. 194-6.000.

Laszlo, Tulacs, to Vianova Kunstharz Aktiengesellschaft. Process for producing water-dilutable heat-hardenable cross-linking copolymers. 3,707,584, Cl. 260-851.000.

Lau, Inge: *See—*
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Launay, Pierre, to Compagnie Industrielle de Travaux. Bracing apparatus for movement of a bridging work. 3,707,011, Cl. 14-1.000.

Lawrence, William Anthony Perry; and Mills, James Arthur, to Elevator Equipment Company. Unit valve for hydraulic elevator control. 3,707,166, Cl. 137-596.160.

Lawson, Jimmie B.: *See—*
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Le Pier, Arvid H., 1/2 to LePier, Howard H. Tire removing device for breaking the bead of farm tractor tires to facilitate removal from the rim. 3,707,179, Cl. 157-1.170.

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Lea, Albert: *See—*
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Lee, Charles A.: *See—*
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Lee, Ernest O., Jr.; and Adams, John A., Jr., to Stromberg-Carlson Corporation. Automatic call-back including simplified storage and scanning. 3,707,605, Cl. 179-18.0bg.

Lee, John W.: *See—*
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Lee, Kyu Tai; and Whitney, Joel G., to Du Pont de Nemours, E. I., and Company. Pharmacutically active derivatives of ethanooctahydrophenanthrene. 3,707,551, Cl. 260-479.00r.

LeFebure Corporation: *See—*
Cutter, Larry I., 3,707,261.

Lehmann, Herbert G. Safety package for electrical line-cord accessory and method of installing accessory. 3,707,040, Cl. 29-628.000.

Leighton, Lee: *See—*

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Lemberg, Alfred A. Expandable hair curler. 3,707,155, Cl. 132-40.000.
Lemieux, Claude: *See—*
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Lensner, Herbert W.; and Ray, Roger E., to Westinghouse Electric Corporation. Frequency shifted modulated carrier protective relaying system with amplitude modulated voice communication. 3,707,651, Cl. 317-28.000.
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Lerner, Marc. Filter tank and mounting adapter for multiport valves. 3,707,233, Cl. 210-278.000.
Lerner, Martin L., to Zenith Radio Corporation. Shadow mask having double-sized apertures. 3,707,640, Cl. 313-85.00s.
Lester, William Carl; Nuccio, carlo; and Ward, Ernest S., to International Business Machines Corporation. Elongated electrode and target arrangement for an RF sputtering apparatus and method of sputtering. 3,707,452, Cl. 204-192.000.
Levene, Martin Lewis, to RCA Corporation. Light beam scanning. 3,707,723, Cl. 346-108.000.
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Lew, Baak W., to Atlas Chemical Industries, Inc. Process for preparing mono-and polyglycosides. 3,707,535, Cl. 260-210.00r.
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Lewis, Roy D., to Mateer, G. Diehl, Co. Apparatus for filling containers. 3,707,174, Cl. 141-157.000.
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Limberg, Allen Le Roy, to RCA Corporation. FM stereophonic receiver detection apparatus and disabling means. 3,707,603, Cl. 179-15.0bt.
Lincoln, Robert M.; and Meyers, Joseph A., III, to Atlantic Richfield Company. Pulping and bleaching of wood chips in a single stage with tertiary butyl hydroperoxide. 3,707,437, Cl. 162-78.000.
Lincoln, Robert M.; and Meyers, Joseph A., III, to Atlantic Richfield Company. Method for the brightening of kraft pulp with tertiary butyl hydroperoxide. 3,707,438, Cl. 162-78.000.
Lindkvist, Erik A. Exhaust devices. 3,707,616, Cl. 219-136.000.
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Loftfield, Richard E.; and Laub, Henry W., to Diamond Shamrock Corporation. Anode and base assembly for electrolytic cells. 3,707,454, Cl. 204-242.000.
Lohmann, Albert, to Mannesman-Meer Aktiengesellschaft. Injection molding apparatus for foamed plastics. 3,707,342, Cl. 425-242.000.
Lombardino, Joseph George, to Pfizer Inc. Antiinflammatory imidazoles. 3,707,475, Cl. 260-309.000.
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Lubin, Adolph H.; deceased (by Lubin, Robert L.; and Lubin, Rose; co-executors); and Stacy, Ivan R., said Stacy assor. to the Estate of Lubin, Adolph H.; deceased, formerly of Barker-Lubin Company. Interior door unit assembly machine. 3,707,256, Cl. 227-7.00.
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Mac Kay, Kenneth D.; Rogier, Edgar R.; and Kreevoy, Maurice M., to General Mills Chemicals, Inc. Isocyanate preparation. 3,707,495, Cl. 260-453.00p.
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Mark, John Richard, to Marconi Company, Limited, The. Scanning aerial systems and associated arrangements therefor. 3,707,719, Cl. 343-100.0sa.
Mark, Vennice E. Convertible end table-desk. 3,707,316, Cl. 312-208.000.
Markert, Juergen; Eckert, Peter; and Della Casa, Angelo, to Ciba-Geigy AG. Sublimatory transfer dyeing with 2-cyano-1,4 diamino anthraquinones. 3,707,346, Cl. 8-2.500.
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Marsh, Anthony. Loading platform light fixture. 3,707,624, Cl. 240-54.00a.
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Mason, Daniel W.; and Nester, Henry H.; deceased (by Nester, Dianne L.; special administratrix), to Owens-Illinois, Inc. Dielectric materials. 3,707,499, Cl. 252-63.500.
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Mayer, Mayer, Jr.; and Baril, Albert, Jr., to United States of America, Agriculture. Method for electrostatically bulking and impregnating staple yarns. 3,707,024, Cl. 28-75.0wt.

Maynard, Edmund M., to Gaydell, Inc. Detachable handle assembly for cooking utensils. 3,707,015, Cl. 16-114.

Mayne, David W.: *See—*
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Mazur, Robert H.; and Jones, David A., Jr., to Searle, G. D., & Company. N-acyl phenylalanine amides. 3,707,559, Cl. 260-558.00a.

McCartney, Earl J., to Sperry Rand Corporation, The. Servo control system. 3,707,721, Cl. 343-759.000.

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McDonald, Edward H.; and Banks, William P., to Continental Oil Company. Electrochemical cell. 3,707,456, Cl. 204-237.000.

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McDougal, Harmon A.: *See—*
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Meyer, Mitchell I.; and Ambrose, Michael J., to Westinghouse Electric Corporation. Spontaneous ignition of fuel in a combustion chamber. 3,707,074, Cl. 60-39.140.

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Michaels, Edwin B.; and Lee, John W. Method for purifying crude trichlorophenol or hexachlorophene. 3,707,568, Cl. 260-619.00a.

Michellone, Giancarlo; Palazzetti, Mario; and Tabasso, Giovanni, to Fiat Societa per Azioni. Anti-skid braking systems. 3,707,313, Cl. 303-21.00a.

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Miles, John M., to Phillips Petroleum Company. Recovery of poly(arylene sulfide) reaction slurry constituents. 3,707,528, Cl. 260-79.000.

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Miller, Robert; Witt, Jerry L.; and Tidmore, Mabry L., to Uniroyal, Inc. Adhesion of rayon textile to rubber with aqueous dispersion of blocked isocyanate or isocyanate dimer, rubber late and resorcinol-formaldehyde resin. 3,707,178, Cl. 152-358.000.

Miller, Robert C.; Carr, Walter J., Jr.; and Mallick, George T., Jr., to Westinghouse Electric Corporation. Weapon detector utilizing the pulsed field technique to detect weapons on the basis of thickness. 3,707,672, Cl. 324-41.000.

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Moreland, William C., II., to Westinghouse Electric Corporation. Self-advancing programmer and pressure actuated devices control arrangement. 3,707,080, Cl. 62-233.000.

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Muller, Hans Joachim; and Bruckner, Horst, to Erdolchemile Gesellschaft mit beschrankter Haftung. Process for the purification of pyrolytic gas mixtures. 3,707,065, Cl. 55-32.000.

Muller, Jakob. Needle loom for pile fabrics. 3,707,171, Cl. 139-25.000.

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Ohlsson, Leonard W.; and Von Arb, Edward J., to Whirlpool Corporation. Water pump with air lock breaking means. 3,707,334, Cl. 415-121.000.

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Peres, Anthony R., 3,707,216.
Peripheral Dynamics Inc.: *See—*
Cargill, Norman Allen, 3,707,122.
Perkins, Garry R., to Spotnails, Inc. Fastener guiding device. 3,707,406, Cl. 227-130.000.
Perotto, Pier Giorgio, to Olivetti, Ing., C., & C., S.p.A. Data input device. 3,707,715, Cl. 340-365.00p.
Perreault, Jules; and Lemieux, Claude, to Bombardier Limited. Spring unit for snowmobile ski runner assembly. 3,707,297, Cl. 280-25.000.
Pestka, John A.: *See—*
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Peterson, Robert A., to Caterpillar Tractor Company. Method of operating a scraper having a manipulatable apron. 3,707,048, Cl. 37-126.0ab.
Peterson, William H., to Pullman Incorporated. Vehicle speed control device actuating mechanism. 3,707,124, Cl. 104-26.00r.
Petri, Nello J., to Petri-Johnson, Inc. Means for securing an insert to a base piece. 3,707,303, Cl. 287-20.300.
Petri-Johnson, Inc.: *See—*
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Burns, William F.; and Martin, Robert B., 3,707,464.
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Petz, Edmund. Head-on wire stripping tool. 3,707,099, Cl. 81-9.50a.
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Pfaffendorf, James L.; and Johnson, Marlyn D., to Safco Products Co. Flap closure for containers. 3,707,023, Cl. 24-85.00b.
Pfeilsticker, Lee J., to Tonka Corporation. Toy grader blade. 3,707,054, Cl. 46-40.000.
Pfizer, Inc.: *See—*
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Phelps, Peter M. Combination cross flow and counter flow cooling tower. 3,707,277, Cl. 261-23.000.
Phillips, Delbert L.; and Feightner, Lewis Clark, to New Twist Connector Corporation, Welder. 3,707,614, Cl. 219-97.000.
Phillips Petroleum Company: *See—*
Gray, Roy A.; Kittleman, Edmund T.; and Ray, Gardner C., 3,707,512.
Heckelsberg, Louis F., 3,707,581.
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Goble, Ralph W., 3,707,601.
Pickering, Alan Hugh, to English Electric Valve Company Limited. Electron discharge tubes. 3,707,639, Cl. 313-30.000.
Piech, Ferdinand, to Porsche, Dr.-Ing. H.c.F., K.G., Firma. Drive chain for driving shafts on wheels, especially for camshaft drives of internal combustion engines. 3,707,092, Cl. 74-245.00r.
Pierce, William C.: *See—*
Henry, O. Lee; and Pierce, William C., 3,707,298.
Pierson, Neil W. Suspension system for tracked vehicles. 3,707,198, Cl. 180-5.00r.
Pike, Daniel E., to Air Pollution Industries, Inc. Gas collector for steel furnace. 3,707,069, Cl. 55-418.000.
Pike, Harold Alan: *See—*
Hercher, Michael; and Pike, Harold Alan, 3,707,687.
Pikl, Josef, to Du Pont de Nemours, E. I., and Company. Process for preparing N-alkylated aliphatic diamines. 3,707,563, Cl. 260-583.00p.
Pilipovich, Donald, to North American Rockwell Corporation. Rocket oxidizer composition. 3,707,413, Cl. 149-109.000.
Pine, Marmon, to Jarva, Inc. Light beam guiding device. 3,707,330, Cl. 356-153.000.
Plate, Walter J., to Anaconda Wire and Cable Company. Shielded cable. 3,707,595, Cl. 174-115.000.

Platteschorre, Kornelis: *See—*
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Plattner, Andrew J., to Kem Krest Products Company. Antitheft device for vehicles. 3,707,702, Cl. 340-64.000.

Plumley, Christopher, to Honeywell Inc. Multiple error detector. 3,707,714, Cl. 340-347.0dd.

Poeste, Hans-Peter; and Vogt, Gerd, to Mannesmann Aktiengesellschaft. Device for charging a mold for continuous casting of a hollow ingot. 3,707,439, Cl. 164-281.000.

Pohl, Raymond Joseph, to Du Pont de Nemours, E. I., and Company. Phenyl-azo-phenyl disperse dyes. 3,707,533, Cl. 260-207.000.

Polaroid Corporation: *See—*
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Pollock, Lyle W., to Phillips Petroleum Company. Apparatus for controlling the temperature of the electrolyte in an electrolytic cell. 3,707,45[illegible] Cl. 204-278.000.

Polytop Corporation: *See—*
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Pomatti, Renato C.: *See—*
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Pommerening, Uwe A.: *See—*
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Ponzano, Gian Luigi, to Olivetti, Ing. C., & C., S.p.A. Serial printing device. 3,707,214, Cl. 117-53.000.

Pook, Karl-Heinz: *See—*
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Popescu, Elena Lygia: *See—*
Georgescu, Eugenia; Ghejan, Ion; Bucur, Victor; Mazare, Theodora; Zirna, Ion; Popescu, Elena Lygia; Budu, Adrian; Olteanu, Bujor; Filotti, Traian Mircea; and Barbul, Marius Aurel, 3,707,509.

Popper, Thomas L.; Herzog, Hershel L.; and Shapiro, Elliot L., to Schering Corporation. 6-Cyano-4,6-pregnadienes, methods for their manufacture, and intermediates thereof. 3,707,487, Cl. 260-397.400.

Porsche, Dr.-Ing. H.c.F., K.G., Firma: *See—*
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Poshkus, Algirdas C.: *See—*
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Wiley, Daniel E.; McDougal, Harmon A.; and Turner, Allan L., 3,707,182.
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Precision Products Company: *See—*
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Johnson, Charles E., 3,707,504.

Products Research & Chemical Corporation: *See—*
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Propst, Robert L. Method and apparatus for harvesting trees. 3,707,175, Cl. 144-309.0ac.

Pullman Incorporated: *See—*
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Query, Grady W. Remote storage arrangement for dishwashing treating agent. 3,707,160, Cl. 137-209.000.

Quinn, Lawrence P.: *See—*
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Ramanathan, Visvanathan: *See—*
Artz, Klaus; Ramanathan, Visvanathan; and Moser, Peter, 3,707,532.

Ramsey, Raymond J., to Bendix Corporation, The. Shield termination apparatus. 3,707,041, Cl. 30-91.200.

Rapid Mountain and Finishing Company: *See—*
Schoenung, Alois F., 3,707,050.

Rasmussen, Dimite J.; and Roth, Peter H., to Polaroid Corporation. Color diffusion transfer film units comprising a layer which contains a synthetic polymer-benzenoid silver halide developing agent complex and process for their use. 3,707,370, Cl. 96-3.00.

Rasmussen, Lester M. Cup holder for automobiles. 3,707,272, Cl. 248-311.000.

Rastoin, Blaise B. Conveyor device for pulverised, granular, fibrous or fluid products. 3,707,224, Cl. 198-213.000.

Ratz, Heinz: *See—*
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Rauls, James M. Adjustable adapter. 3,707,301, Cl. 285-9.00r.

Rauner, Frederick J.: *See—*
Martinson, Lawrence E.; Rauner, Frederick J.; and Gilson, Richard E., 3,707,373.

Rausser, Richard C.; and Shapiro, Elliot L., to Schering Corporation. Process for the preparation of 6-azido-11 beta-hydroxy-4, 6-pregnadienes and novel intermediates produced thereby. 3,707,484, Cl. 260-349.000.

Rawlinson, John, to Lever Brothers Company. Detergent composition. 3,707,502, Cl. 252-99.000.

Rawls, John L., Jr., to Sperry Rand Corporation. High frequency vacuum tube energy coupler. 3,707,647, Cl. 315-3.500.

Ray, Gardner C.: *See—*
Gray, Roy A.; Kittleman, Edmund T.; and Ray, Gardner C., 3,707,512.

Ray, Roger E.: *See—*
Lensner, Herbert W.; and Ray, Roger E., 3,707,651.

Razdan, Raj K.; and Thompson, William R., to Beecham Group Limited, mesne. Certain 4-(4-pyridyl)-5-hydroxy-coumarin intermediates. 3,707,474, Cl. 260-295.00f.

RCA Corporation: *See—*
Levene, Martin Lewis, 3,707,723.
Limberg, Allen Le Roy, 3,707,603.
Lunn, Lawrence Mark, 3,707,597.
Scott, Richard David, 3,707,254.

Recht, Friedel. Tobacco pipe bowl. 3,707,154, Cl. 131-216.000.

Reddick, Willis C., to International Telephone and Telegraph Corporation. Hands-free emergency call box. 3,707,607, Cl. 179-100.00l.

Reeder, William R.; and Sadler, Fred S., to McGraw-Edison Company. Method of treating cellulosic material to improve the usefulness thereof as an insulator in electrical apparatus. 3,707,692, Cl. 336-94.000.

Reese, Gerald D.; Shank, Gerald G.; and Carlson, Lowell D., to Textron Inc. Fuel injection system for two cycle engine. 3,707,143, Cl. 123-65.00a.

Reid, Luther J., Jr.: *See—*
Suryanarayana, Yelagondahally S.; and Reid, Luther J., Jr., 3,707,544.

Reiner, Joel Russell; Preusch, William J.; and Davenport, William G., to Beaumont Birch Company. Incinerator charging cut-off gate. 3,707,130, Cl. 110-173.00r.

Reines, Scott A., to United States of America, Navy. Fluorinated monoglycidyl ethers. 3,707,483, Cl. 270-348.00r.

Reinhardt, Helmut; Trebinger, Karl; and Kallrath, Gottfried, to Deutsche Gold- und Silber-Scheideanstalt vormal Roessler. Process for the production of pure aqueous potassium as sodium hexacyanoferrate(III) solution. 3,707,449, Cl. 204-91.000.

Reinwald, Elmar; and Galinke, Joachim, to Henkel & Cie G.m.b.H. Clarification of aqueous suspensions with oxyalkylated polyacrylamide flocculating agents. 3,707,466, Cl. 201-52.000.

Remington Arms Company, Inc.: *See—*
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Research Association for the Paper and Board Printing and Packaging Industries, The: *See—*
Heasman, David Michael; and Little, Andrew Wallace, 3,707,123.

Research Corporation: *See—*
Cassidy, Harold G.; Wegner, Gerhard; and Nakabayashi, Nobuo, 3,707,488.

Reynolds Metals Company: *See—*
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Wilson, Calvin L.; and Fox, John H., Jr., 3,707,028.

Reynolds, R. J., Tobacco Company: *See—*
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Rhinehart, R. Russel: *See—*
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Richtzenhain, Hermann: *See—*
Stephan, Rudolf; and Richtzenhain, Hermann, 3,707,574.

Ridgway, Merrill L.; and Kaiser, Willard D., to Minster Machine Company, The. Feed arrangement for strip stock. 3,707,255, Cl. 226-136.000.

Rivolier, Charles, to Societe Anonyme D.B.A. System for controlling the angular position of the headlights of a vehicle. 3,707,623, Cl. 240-7.11j.

Roberts, Rene M. J.: *See—*
Berthold, Robert V.; and Roberts, Rene M. J., 3,707,545.

Roberts, Robert, to Fluorodynamics, Inc. Sealing apparatus for manufacturing roller covering, vessel liners and the like. 3,707,428, Cl. 156-583.000.

Roberts, Robert D., to Houdaille Industries, Inc. Centralized lubrication system. 3,707,203, Cl. 184-6.400.

Roberts, Victor N. Wrench. 3,707,100, Cl. 81-175.000.

Robertson, Richard C., to Addressograph-Multigraph Corporation. Sheet guide apparatus. 3,707,328, Cl. 355-106.000.

Robinson, Daniel E.; and Rubinstein, Solomon, to General Cable Corporation. Electrical terminal structure with wedged conductor. 3,707,698, Cl. 339-198.00r.

Robinson, Donald E.: *See—*

Campbell, Kenneth C.; Robinson, Donald E.; Rhinehart, R. Russel; and Truesdale, Wade J., 3,707,588.

Robinson, Gerald H.; and Strenglein, Harry F., to Sperry Rand Corporation. High frequency gyromagnetic device employing slot transmission line. 3,707,688, Cl. 333-24.100.

Robinson, Ralph G., 1/3 to Anderson, LeRoy A. Planetary amusement ride. 3,707,282, Cl. 272-36.000.

Robinson, Roland D.: *See—*
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Robison, Herbert D., 50% to Thiele, Edmund J. Combined tape dispenser and applicator. 3,707,426, Cl. 156-527.000.

Rock, Edward J.: *See—*
Bjorksten, Johan; and Rock, Edward J., 3,707,367.

Rogier, Edgar R.: *See—*
Mac Kay, Kenneth D.; Rogier, Edgar R.; and Kreevoy, Maurice M., 3,707,495.

Romano, Joseph J.; and Shatynski, John J., to Stauffer Chemical Corporation. Functional fluid composition. 3,707,500, Cl. 252-78.000.

Romanuk, Miroslav; Sorm, Frantisek; and Slama, Karel, to Ceskoslovenska Akademie ved. Insecticide with juvenile hormone activity and process of its preparation. 3,707,491, Cl. 260-410.90r.

Romero, Eduardo: *See—*
Rotolico, Anthony J.; and Romero, Eduardo, 3,707,615.

Rosa, John, to Westinghouse Electric Corporation. Inverter apparatus and method for high frequency lamp operation. 3,707,648, Cl. 315-231.000.

Rosiello, Raymond S.: *See—*
Arnold, George R.; and Rosiello, Raymond S., 3,707,152.

Rosink, Wilhelmus Bernardus: *See—*
Nijhof, Engbert Bernard Gerard; and Rosink, Wilhelmus Bernardus, 3,707,660.

Ross, Gerald, to Esso Research and Engineering Company. Conversion of heavy petroleum feedstocks. 3,707,462, Cl. 208-127.000.

Rostagno, Walter, to Societe d'Assistance Technique pour Produits Nestle S.A. Production of cocoa liquor. 3,707,382, Cl. 99-26.000.

Roth, Peter H.: *See—*
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Rotolico, Anthony J.; and Romero, Eduardo, to Metco Incorporated. Nozzle for a plasma generator. 3,707,615, Cl. 219-121.00p.

Roussel-UCLAF: *See—*
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Royal Industris, Inc.: *See—*
Congrove, Ronald L., 3,707,104.

Rubinstein, Solomon: *See—*
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Rudolph, Joannes Gerard; and Moesker, Gerard, to U.S. Philips Corporation. Semiconductor device having pairs of contact areas and associated supply conductor points of attachment in a preferred arrangement. 3,707,655, Cl. 317-234.00r.

Rumpf, Jurg: *See—*
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Rush, Richard B. Method for producing a three-dimensional diorama. 3,707,115, Cl. 95-12.000.

Russell, Stanley L.: *See—*
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Rutter, Carlton G.; Barry, Richard F.; and McLennan, Frank J., to Texas Instruments, Incorporated. Apparatus for making edgelay thermostatic bimetals. 3,707,617, Cl. 219-137.000.

S and R Associates, Inc.: *See—*
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Sadler, Fred S.: *See—*
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Safco Products Co.: *See—*
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Sakai, Toshinori, to Hitachi, Ltd. Microprogram-controlled data processing system capable of checking internal conditions thereof. 3,707,703, Cl. 340-172.500.

Sakatos, Michael, to Sigma Instruments, Inc. Reed switch apparatus. 3,707,690, Cl. 335-153.000.

Salemi, Nicholas A., to Westinghouse Electric Corporation. Support module for reverse osmosis membrane. 3,707,234, Cl. 210-321.000.

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Sambucetti, Carlos J.: *See—*
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Sanchez, Manuel Rodriguez; and Baste, Jose Puigdomenech. Closure construction for plastic bags. 3,707,271, Cl. 248-101.000.

Sanctuary, Clifford, to Del Mar Engineering Laboratories. Remote scoring system for bombing or rocket range. 3,707,699, Cl. 340-16.00m.

Sandoz, Ltd.: *See—*
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Sandoz Ltd; a/k/a Sandoz AG: *See—*
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Sanford Research Company: *See—*
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Sano, Konosuke: *See—*
Shiio, Isamu; Sano, Konosuke; and Nakamori, Shigeru, 3,707,441.

Santilli, James N.: *See—*
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Sasse, Reinhard, to Messerschmitt-Bolkow-Blohm Gesellschaft mit beschrankter Haftung. Catalyst structure for the decomposition of hydrazine and hydrazine derivatives and method for its preparation. 3,707,510, Cl. 252-462.000.

Sato, Masamichi: *See—*
Fukushima, Osamu; Sato, Masamichi; and Matsumoto, Seiji, 3,707,139.

Saunders, Richard C., to North American Rockwell Corporation. Thermoelectric element. 3,707,429, Cl. 161-116.000.

Sawa, Yoshiro; Maeda, Ryozo; and Irisawa, Junji, to Shionogi & Co., Ltd. Process for removing phenolic hydroxyl group from phenolic compounds. 3,707,470, Cl. 260-285.000.

Sawyer, Samuel P.: *See—*
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Scarbrough, Joe M., to Martin-Marietta Corporation. Electronic pattern recognition. 3,707,598, Cl. 178-6.800.

Schauffele, Carl N.; and Metzger, Lenard M., to Eastman Kodak Company. Disc controlled interlaced scanning raster. 3,707,600, Cl. 178-7.200.

Scheibel, Josef, to Braun A. G. Magnifier with optical contrast equalizer. 3,707,327, Cl. 355-71.000.

Schering Aktiengesellschaft: *See—*
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Schering Corporation: *See—*
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Schieven, Stanley R.: *See—*
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Schindler, Walter; and Blattner, Hans, to Ciba-Geigy Corporation. 10-Aminoalkylene-5H-di-benzo [a,d] cycloheptenes. 3,707,562, Cl. 260-570.8tc.

Schlegel Manufacturing Company, The: *See—*
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Schliebs, Reinhard; Uhlig, Konrad; Oertel, Gunter; and Diehr, Hans-Joachim, to Farbenfabriken Bayer Aktiengesellschaft. Process for the preparation of organic phosphorus compounds. 3,707,587, Cl. 260-970.000.

Schlitt, Klaus. Soldering gun for one-handed manipulation. 3,707,258, Cl. 228-52.000.

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Schlumberger Technology Corporation: *See—*
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Schneider, Abraham, to Sun Oil Company. Halogenation of polycyclic perhydroaromatics. 3,707,571, Cl. 260-648.00r.

Schneider, Abraham, to Sun Oil Company. Dihalogenation of alkyldecahydronaphalenes. 3,707,572, Cl. 260-648.00r.

Schneider, Abraham, to Sun Oil Company. Dihalogenation of perhydropolyphenyl hydrocarbons. 3,707,573, Cl. 260-648.00r.

Schneider, Jos., & Co., Optische Werke Kreuznach: *See—*
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Schoenung, Alois F., to Rapid Mountain and Finishing Company. Rocking display device. 3,707,050, Cl. 40-30.000.

Schreyer, Gerd; Troger, Jurgen; Weigert, Wolfgang; and Weiberg, Otto, to Deutsche Gold- und Silber-Scheideanstalt vormal Roessler. Process for the recovery of non-aqueous hydrogen peroxide. 3,707,444, Cl. 203-51.000.

Schroder, Eberhard: *See—*
Gutsche, Klaus; Albrecht, Rudolf; Kessler, Hans-Joachim; and Schroder, Eberhard, 3,707,485.

Schroeder, Charles F., to Owens-Corning Fiberglas Corporation. Reinforcement of rubber. 3,707,120, Cl. 161-90.000.

Schulz, Hans-Dieter, to Schloemann Aktiengesellschaft. Safety system for continuous casting machine. 3,707,181, Cl. 164-152.000.

Schumann, Joseph M.: *See—*
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Schwarz, Karl: *See—*
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Scott, Richard David, to RCA Corporation. Aerial photography. 3,707,254, Cl. 226-97.000.

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Sealed Power Corporation: *See—*
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Searle, G. D., & Company: *See—*
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Segebrecht, Udo, to Siemen & Hinsch mbH. Liquid seal compressors. 3,707,337, Cl. 417-68.000.

Seidl, Alois: *See—*
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Sellers, Ernest A. Means and method for pictorial presentation of physiological signals which vary with time and position. 3,707,147, Cl. 128-2.06g.

Seragnoli, Ariosoto, to G. D. Societain Accomandita Semplice di Enzo Seragnoli E. Ariosto Seragnoli. Conveyor device having containers

for storing and assembling overlying layered sets of side arranged cigarettes for packing up thereof as packets in cigarete packaging machines. 3,707,219, Cl. 198-131.000.
Seres, Alex, to Incoe Corporation. Nozzle for an injection molding machine. 3,707,265, Cl. 239-601.000.
Servodyne Corporation: *See—*
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Shank, Gerald G.: *See—*
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Shapiro, Marvin, to Digitronics Corporation. Actuating apparatus for a business machine. 3,707,619, Cl. 235-61.0pe.
Sharbon, Jack Z., to American Flange & Manufacturing Co., Inc. Method in apparatus for feeding closures. 3,707,217, Cl. 198-33.0aa.
Sharp, Denis, to U.S. Philips Corporation Anti-lock brake system with variable rate brake pulsing. 3,707,310, Cl. 303-21.0cg.
Sharp, Denis, to U.S. Philips Corporation. Anti-lock brake systems for wheeled vehicles. 3,707,311, Cl. 303-21.0cg.
Sharp, Kenneth Henry. Treatment of raw protein. 3,707,381, Cl. 99-18.000.
Sharpe, Everett E.; and Hughes, Johnstone E., to Better Packages Inc. Liquid applicator for strip material. 3,707,135, Cl. 118-244.000.
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Sheppard, Charles W., to Westinghouse Air Brake Company. Emergency trip apparatus for a braking system. 3,707,627, Cl. 246-192.000.
Shiio, Isamu; Sano, Konosuke; and Nakamori, Shigeru, to Ajinomoto Co., Inc. Method of producing L-lysine by fermentation. 3,707,441, Cl. 195-29.000.
Shimizu, Akira: *See—*
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Smoot, Edward H.; to Schlegel Manufacturing Company, The. Strap handle anchorage. 3,707,016, Cl. 16-125.000.
Sobel, Lucien; Parvi, Ludovic; and Isard, Arsene, to Ugine Kuhlmann. Flame retardant epoxy resins. 3,707,525, Cl. 260-47.0ea.
Sobel, Lucien; Parvi, Ludovic; and Isard, Arsene, to Ugine Kuhlmann. Polyhalogenated aromatic amines. 3,707,561, Cl. 260-370.700.
Societa Angelo Guala di Piergiacomo e Roberto Gulala & C. S.a.S.: *See—*
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Societe Anonyme des Hauts Fourneaurx de la Chiers: *See—*
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Societe d'Assistance Technique pour Produits Nestle S.A.: *See—*
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Societe Nationale d'Etudes et de Construction de Moteurs d'Aviation: *See—*
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Spieth, Albert; and Spieth, Rudolf. Bar structure for the horizontal bars of a gymnastic apparatus. 3,707,286, Cl. 272-63.000.
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Stahl, Joel S. Plastic plumbing wall. 3,707,165, Cl. 137-594.000.
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Stayner, Vance A., to Federal-Huber Corporation. Rigidified resinous laminate. 3,707,434, Cl. 161-161.000.
Steeves, Robert W.: *See—*
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Steinberg, David H.; and Dexter, Martin, to Ciba-Geigy Corporation. Dialkyl-4hydroxyphenylcarboxylates of tris (hydroxy-alkyl) isocyanurate. 3,707,542, Cl. 260-248.0ns.
Steinberg, David H.; and Dexter, Martin, to Ciba-Geigy Corporation. Dibutyl-4-hydroxyphenylbenzoates of tris(hydroxyalkyl) isocyanurate. 3,707,543, Cl. 260-248.0ns.
Stella-Metafilters Limited: *See—*
Charlesworth, David, 3,707,398.
Stenmark, Donald G., to Esso Research and Engineering Company. Separation of aromatics. 3,707,577, Cl. 260-674.00a.
Stephan, Rudolf; and Richtzenhain, Hermann, to Dynamit Nobel Aktiengesellschaft. Method for the continuous production of 1,1-dichlorethane. 3,707,574, Cl. 260-658.00r.
Stephen, R. A., & Company Limited: *See—*
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Stewart, Richard Gordon, to Parks-Cramer (Great Britain) Ltd. Apparatus for reducing accumulation of waste and disposing of waste in carding machines. 3,707,020, Cl. 19-107.000.
Stine, Laurence O.; and Broughton, Donald B., to Universal Oil Products Company. Process for the production and recovery of ortho-xylene, paraxylene and ethylbenzene. 3,707,550, Cl. 260-674.0sa.
Stoneham, Jeffrey R.; and Wood, Lawrence M., to Eastman Kodak Company. Shutter mechanism. 3,707,118, Cl. 95-62.000.
Stradella, Giuseppe; Stradella, Umberto; Daniele, Giuliano; and Gatti, Recco. Constant ratio calibration and transmission device for movements of bourdon type pressure gages and the like. 3,707,089, Cl. 73-418.000.
Stradella, Umberto: *See—*
Stradella, Giuseppe; Stradella, Umberto; Daniele, Giuliano; and Gatti, Recco, 3,707,089.
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Sugaya, Hiroshi; Kobayashi, Fukashi; and Ono, Mitsuaki, to Matsushita Electric Industrial Co., Ltd. Method and apparatus for duplicating a magnetic tape. 3,707,608, Cl. 179-100.20e.
Sullivan, William A., Jr., to Xerox Corporation. Method for developing electrostatic latent images. 3,707,390, Cl. 117-17.500.
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Suryanarayana, Yelagondahally S.; and Reid, Luther J., Jr., to Ciba-Geigy Corporation. Production of cyanuric chloride. 3,707,544, Cl. 260-248.00c.
Svaldi, Marvin A., to Marathon Oil Company. Use of diverting agents for injection well stimulation. 3,707,194, Cl. 166-305.00r.
Svoboda, Vladimir; and Vajda, Andrej, to Elitex, Zavody textilnihl strojirenstvi. Apparatus for supplying weft threads to a warp knitting machine. 3,707,083, Cl. 66-125.000.
Sweco, Inc.: *See—*
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Syntex Corporation: *See—*
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Systron Donner Corporation: *See—*
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Takebayasi, Hisatomo, to Kurita Water Industries Ltd. Anti-splash tap nozzle. 3,707,236, Cl. 210-449.000.
Takimoto, Masaaki: *See—*
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Talaga, Thomas E. Powered medical tool incorporating means for cleaning the same. 3,707,042, Cl. 32-27.000.
Talley, Walter J., Jr., to Sweco, Inc. Wastewater concentration with plural distributors. 3,707,235, Cl. 210-377.000.
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Tamburro, Robert J.; and Ohanian, Ronald N. Tamperproof serial number. 3,707,300, Cl. 283-8.000.
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Tauchi, Shoji; Miwa, Ichiro; and Homma, Makoto, to Hitachi, Ltd. Method of manufacturing semiconductor devices. 3,707,410, Cl. 148-187.000.
Taylor, Guy A., to Sanford Research Company. Plastic container with threaded mouth strengthening closure means. 3,707,241, Cl. 215-43.00a.
Teach, Eugene G., to Stauffer Chemical Company. Bis-meta-phenylene ureas. 3,707,556, Cl. 260-553.00a.
Teeg Research, Inc.: *See—*
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Teel, Patrick A.; and MacEachron, Lendrum A. Banjo structure. 3,707,105, Cl. 84-269.000.
Teichmuller, Gerhard; Barnikol-Oettler, Kurt; and Hartmann, Werner, to VEB Jenapharm. Process of preparing ethylidene compounds. 3,707,489, Cl. 260-397.500.
Teikoku Hormone Mfg. Co., Ltd.: *See—*
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Thalenfeld, David R. Price tag holder, and mounting adapter therefor. 3,707,049, Cl. 40-10.000.
Theis, James V., Jr.; McCord, John B.; and Holly, Harry H., to Hollymatic Corporation. Fluid engine. 3,707,336, Cl. 416-186.000.
Thibodeau, John L., Sr. Prime mover. 3,707,238, Cl. 214-390.000.
Thiele, Edmund J.: *See—*
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Thompson, William R.: *See—*
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Thornton, William A., to Westinghouse Electric Corporation. Discharge device which utilizes a mixture of two fluorescent materials. 3,707,641, Cl. 313-109.000.
Thornton, William A., Jr., to Westinghouse Electric Corporation. Vapor lamp which incorporates a special phosphor coating. 3,707,642, Cl. 313-109.000.
Tidmore, Mabry L.: *See—*
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Tipton, Damon F.; and Jeffers, Lonnie R. Natural gas saver with separator and compressor. 3,707,157, Cl. 137-14.000.
Tishken, Paul, to Tishken Products, Co. Workstock cutting apparatus. 3,707,103, Cl. 83-113.000.
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Tomlinson, William H., to Columbian Steel Tank Company. Discharge means for tanks or bins. 3,707,249, Cl. 222-464.000.

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Toray Industries, Inc.: *See—*
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Townsend, Herbert E., to Bethlehem Steel Corporation. Coating for cathodically protected structures. 3,707,450, Cl. 204-147.000.

Toyota Jidosha Kogyo Kabushiki Kaisha: *See—*
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Tredway, Wynn B. Golf swing training glove including light projecting device. 3,707,291, Cl. 273-183.50b.

Tribley, Gilbert: *See—*
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Trifunovic, Alexnader L., to Bancroft, Joseph, & Sons, Company. Stuffer crimper with driven choke members for pressure control in the crimping zone. 3,707,299, Cl. 28-1.600.

Trigg, Harry E.; and Mitchell, Luther W., to International Transportation Service Corporation. Spring driven traffic counter. 3,707,264, Cl. 235-99.00a.

Troger, Jurgen: *See—*
Schreyer, Gerd; Troger, Jurgen; Weigert, Wolfgang; and Weiberg, Otto, 3,707,444.

Trostler, Richard M. Pool cover arrangement. 3,707,007, Cl. 4-172.140.

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Turner, Allan L.: *See—*
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Twyford, Robert H., to Mechanical Enterprises Incorporated. Coding keyboard and electrical switch therefor. 3,707,611, Cl. 200-211.000.

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Uekusa, Genzo; Tanimura, Shigeru; and Maejima, Norio, to Omron Tateisi Electronics Co. Non-contact switching device including oscillator controlled by movable magnets. 3,707,686, Cl. 331-65.000.

Ueno, Katsuji; and Oshima, Takao, to Sumitomo Chemical Co., Ltd. Method for preparing alkylene oxide polymers. 3,707,513, Cl. 260-2.00a.

Uffner, William E., to Owens-Corning Fiberglas Corporation. Glass fiber reinforced elastomers. 3,707,399, Cl. 117-72.000.

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Uhlenhaut, Rudolf; Wieland, Egon; and Dittrich, Uwe-Bernd, to Daimler-Benz Aktiengesellschaft. Shifting lever for the transmission of motor vehicles. 3,707,095, Cl. 74-473.00r.

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Ujihara, Motohiro; and Fujii, Itsuo, to Fuji Photo Film Co., Ltd. Process for the flocculation of photographic gelatino silver halide emulsions. 3,707,378, Cl. 96-114.800.

Ujile, Akira, to Mitsubishi Jukogyo Kabushiki Kaisha. Method and apparatus for manufacturing spherical metallic vessels or hemispherical vessel heads. 3,707,613, Cl. 219-76.000.

Ulics, George, to Ford Motor Company. Bellows flexible joint. 3,707,082, Cl. 64-11.00b.

Uni-Mist, Inc.: *See—*
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Untermyer, Samuel, to National Nuclear Corporation. Nuclear fuel assay system. 3,707,631, Cl. 250-71.50r.

Ursel, Ekchard, to Bosch, Robert, G.m.b.H. Thermoelectric pulse generator for motor vehicles. 3,707,633, Cl. 307-106.000.

U.S. Industries, Inc.: *See—*
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Van Ausdal, Robert K.; and Cooper, Donald R., to Bendix Corporation, The. Fluidic accelerometer. 3,707,090, Cl. 73-515.000.

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Greefkes, Johannes Anton; de Koe, Oscar Bernardus Philomenus Rikkert; and Van den Enden, Adrianus Wilhelmus Maria, 3,707,604.

Van Der Voorn, Carol R.; and Willis, Roland G., to Eastman Kodak Company. Photographic silver-bleaching composition. 3,707,374, Cl. 96-60.000.

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Van Stappen, Albert Louis; Schwarz, Karl; and Weber, Hans; deceased (by Weber, Charlotte; and Lau, Inge; inheritors), said Van Steppen and said Schwarz assor. to Du Pont de Nemours, E. I., and Company. Process of sensitizing silver halide emulsion with pol(alkylene oxide) and sulfur compounds. 3,707,376, Cl. 96-108.000.

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Vasta, Joseph A., to Du Pont de Nemours, E. I., & Company. Coating compositions containing phthalate ester. 3,707,578, Cl. 260-67.60r.

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Wippermann, Josef, to Heinze, Richard. Cover caps with pegs for inserting in a series of holes. 3,707,226, Cl. 206-56.0df.
Wismer, Marco; and Bosso, Joseph F., to PPG Industries, Inc. Novel composite structure from resole resins and inorganic nodules. 3,707,414, Cl. 156-78.000.
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Wright, Charles D.; and Zollinger, Joseph La Mar, to Minnesota Mining and Manufacturing Company. Certain organic fluoroamino compounds. 3,707,555, Cl. 260-563.00r.
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Martin, Thomas W., and A. F. Warner, by Arthur J. Rebrovick and Cutters Machine Co., Inc. Cutting apparatus for cloth spreading machine. Re. 27,538, 12–26–72, Cl. 270—31.

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Schwalm, Wilhelm, to Vickers-Zimmer Aktiengesellschaft-Planung und Bau von Industrieanlagen. Worm melter and extruder. Re. 27,539, 12–26–72, Cl. 259—191.

Van der Veen, Romke, and J. de Koning, to N.V. Ingenieursbureau voor systemen en- Octrooien Spanstaal. Method and suction dredging installation for conveying dredging spoil. Re. 27,536, 12–26–72, Cl. 73—61 R.

Van der Veen, Romke, to N.V. Ingenieursbureau voor systemen en- Octrooien Spanstaal. Method and device for determining the quantity of dredging spoil to be paid. Re. 27,535, 12–26–72, Cl. 73—61 R.

Van Winkle, Howard E.: *See*—
Fisher, Gene A., and Van Winkle. Re. 27,537.

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Mack, Grace H., W. H. Jessel, Jr., and W. E. Duffett, to Grace H. Mack. Chrysanthemum plant. 3,278, 12–26–72, Cl. 75.

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Arnone, Michael P., to Kreisler Mfg. Corp. Clip for writing instrument. 225,690, 12–26–72, Cl. D74—17.

Bagn, Bjorn, to Emhart Corp. Bottle. 225,616, 12–26–72, Cl. D9—12.

Bankert, Dean W., and D. L. Wilson, to Hadco Products, Inc. Lighting fixture. 225,676, 12–26–72, Cl. D48—31.

Barrault, Jean-Louis, to Compagnie Industrielle des Telecommunication. Intercommunications set. 225,648, 12–26–72, Cl. D26—14.

Baugh, Benjamin C., to The Coleman Co., Inc. Catalytic heater. 225,640, 12–26–72, Cl. D23—122.

Baugh, Benjamin C., to The Coleman Co., Inc. Combined catalytic heater and protective cover therefor. 225,641, 12–26–72. Cl. D23—123.

Beach, Kenneth E., to Honeywell, Inc. Housing for electrical apparatus. 225,644, 12–26–72, Cl. D26—5.

Becker, James R., and H. Kesler. Bird whistle. 225,662, 12–26–72, Cl. D34—15.

Bird, Forrest M., and H. L. Pohndorf. Portable respirator. 225,692, 12–26–72, Cl. D83—1.

Bishop, John L., to DLM Inc. Truck dock bumper. 225,615, 12–26–72, Cl. D8—263.

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